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MANUAL TRAINING MAGAZINE

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CLASSROOM PRACTICE IN DESIGN, II.[1]

JAMES PARTON HANEY.

THE previous discussion of the subject dealt with the principles which should underlie the organization of any series of problems in school practice; the present discussion concerns itself with questions of method. Essential to the success of any given problem is: (1) Adequate preparation by the teacher. (2) Appropriate illustrative material. (3) An analysis of the problem by the pupil, followed by its definite statement by the teacher. (4) Systematic development of the steps of the problem. (5) Critical review by the pupils.

ADEQUATE PREPARATION BY THE TEACHER.

Adequate preparation by the teacher requires that she consider in detail the elements of the problem to be solved by her pupils. Upon her rests the determination of the propriety of the design in question. She must satisfy herself that the model to be decorated will have its beauty enhanced by the proposed decoration, and must settle upon the exact type of pattern which the pupil is to develop. If more than one scheme of decoration presents itself it may be possible for her to have part of her class solve the problem in one way, while another part develops a different arrangement. As a rule it will not be wise to attempt more than two such variations.

Emphasis is to be laid upon the preliminary determination of the problem by the teacher. It is she who is responsible for the main ele-

[1] A continuation of the article on Classroom Practice in Design, published in the April magazine.

ments of the pattern. It is her business to lead her pupils to make designs which are good in arrangement, and original only so far as her pupils are prepared to do original work. She should solve the problem herself, that she may learn the most satisfactory arrangement of masses and the manner in which they may be best developed. So doing she will have revealed the difficulties her class will experience—difficulties which lie in the steps that call for original work. In the simplest problems these turn on the modification of the masses, in the more difficult, they involve questions as to the size and placing of the masses, their development and conventional treatment. Through her own solution the teacher is prepared to prevent egregious errors of performance by her pupils.

ILLUSTRATIONS OF THE PROBLEM.

What is termed originality in design is largely a matter of recombination. The professional designer has a broad background of experience and has recourse to examples from the hands of other artists. The child has a limited experience made up chiefly of recollections of bad examples which he has seen at home or in the shops. It is essential, therefore, that many well-chosen illustrations be placed before him, when he is called upon to work for himself.

Good illustrations are essential to good design. They not only offer technical suggestions but they establish standards of performance by which the child can judge his work. Without suitable illustrations he solves his problem in the dark. By means of them he can be shown exactly what is wanted.

The illustrative matter offered should take three forms—charts, blackboard drawings, and examples of pupils' work. In the lower grades, the charts (made on good-sized sheets of wrapping paper) should show various simple arrangements of masses, simply divided. They may be painted with ink or water-color, or drawn with colored chalks. In the upper grades, a variety of these illustrative sheets will prove of value. Some should offer drawings of plant forms and illustrations of growth and the details of flowers and leaves (see Fig. 1.); others should show conventional elements derived from such plants. (See Fig. 2.) Small hectographed reproductions of flower parts, mass arrangements, etc., will also prove useful. These should be on oak-tag that they may stand the wear and tear of constant handling by many pupils. (See Fig. 3.)

Still other charts, made by mounting illustrations on large sheets of cardboard, will be of service. These examples should be taken from the work of professional designers in art magazines, catalogues, advertising

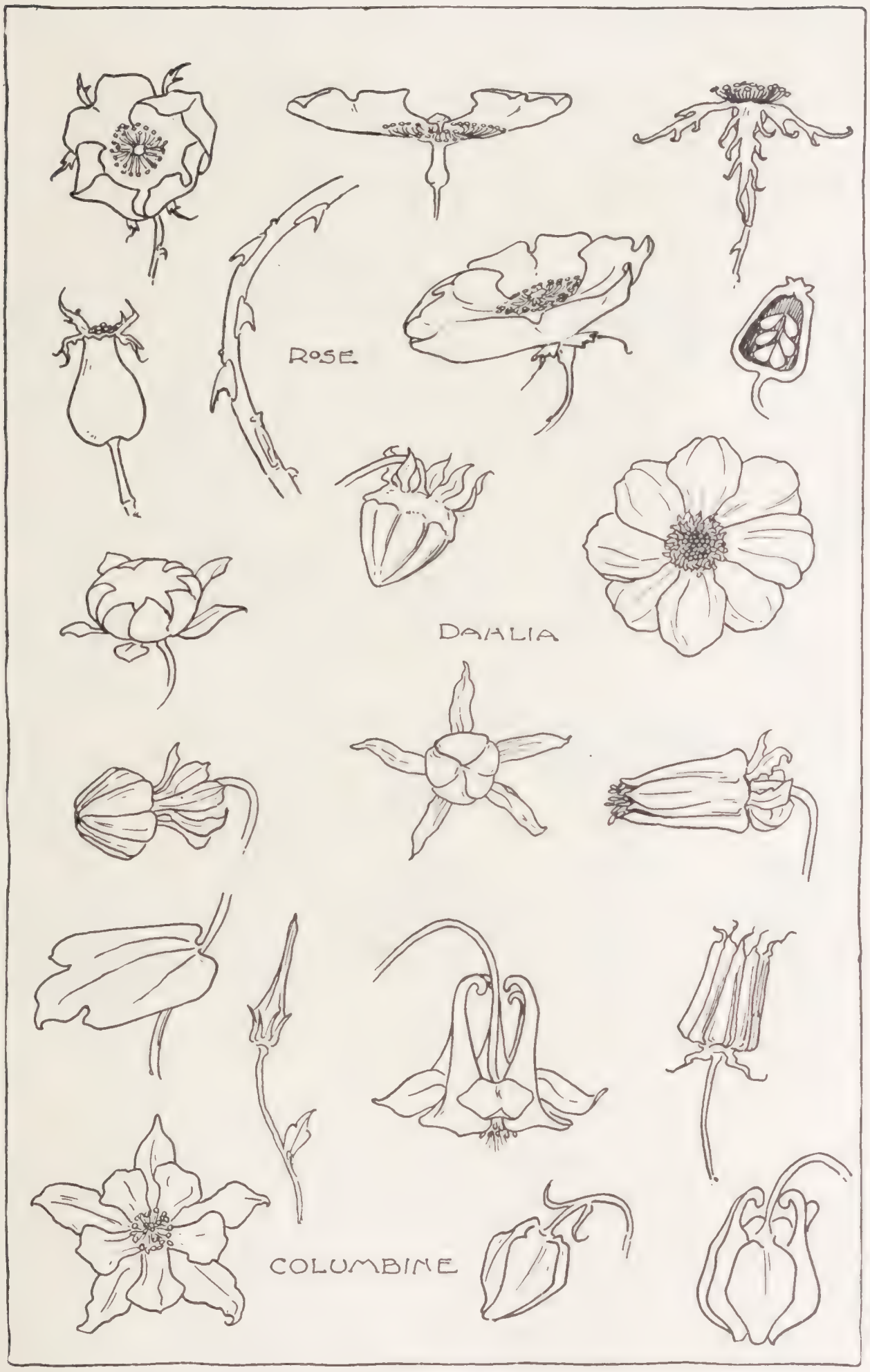


FIG. I. DECORATIVE ELEMENTS FROM VARIOUS PLANTS.

circulars and the like. The pupils themselves should be led to aid in making such charts, designs being solicited from them which offer good illustrations of mass arrangements. Not only is the search for these of great value in developing the taste, but as they show the practical application of the principles of decoration, they cause the pupils to realize the importance of their study. (See Fig. 4.)

FIG. 2. CONVENTIONAL ELEMENTS FROM FLOWERS AND SEED-PODS.

Blackboard illustration should be constant during the development of any problem. Those drawings to which it is desirable repeatedly to refer, it will be well to make with colored chalk on large sheets of wrapping paper. The color is attractive, and the drawings, if carefully handled, may be saved from lesson to lesson. This, when a single problem in design carries over several lessons is of no small advantage.

Perhaps the most serviceable of all aids are good examples of pupils' work. These should be collected from term to term until the

teacher has two or three score of them. They may readily be pinned up during the development of any lesson, and removed when actual work begins, that mere copying may be prevented. Later, they may again be displayed, that the work of the class as a whole may be compared with the best results previously secured. (See Fig. 5 and 13.)

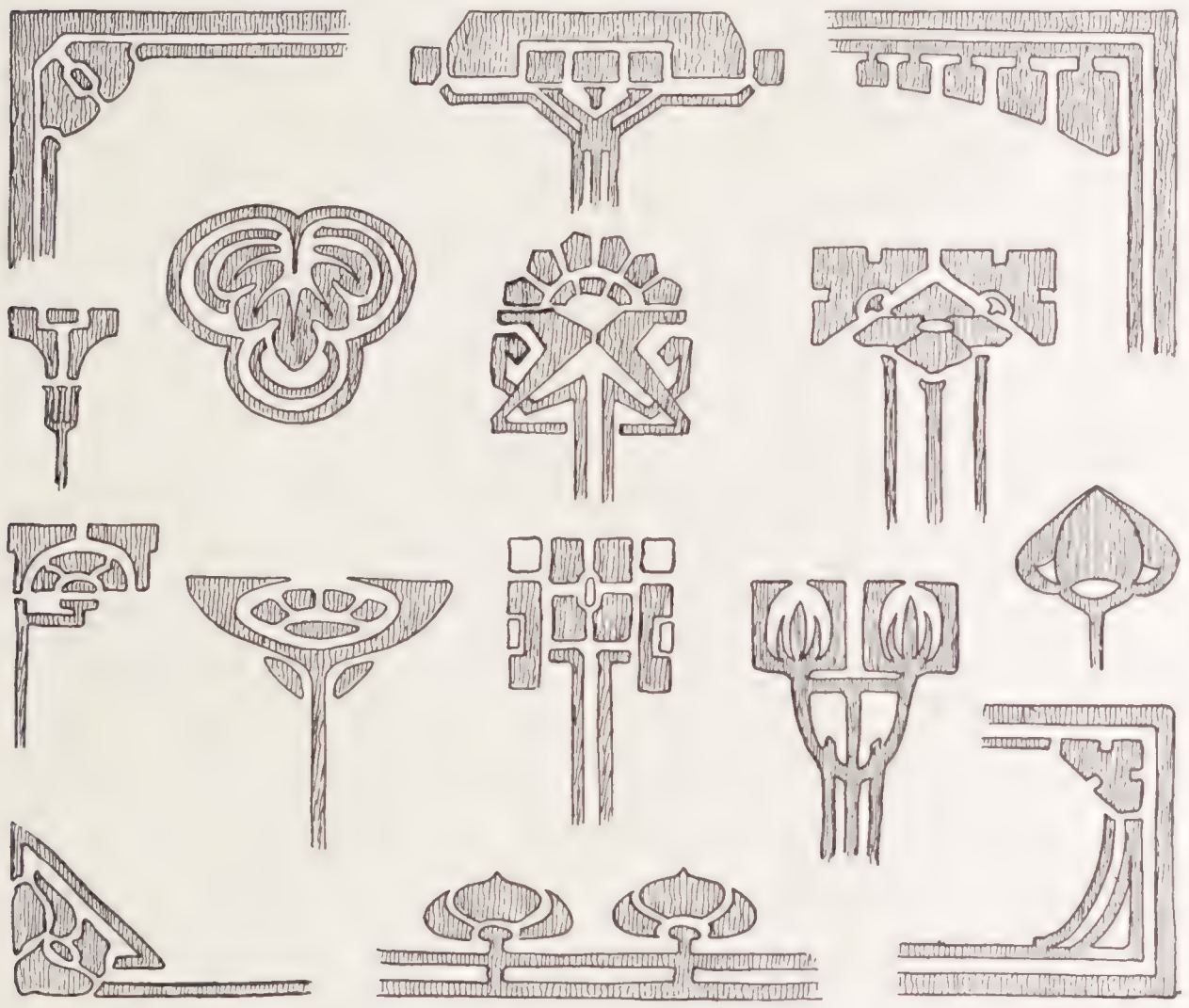


FIG. 3. FLOWER FORMS CONVENTIONALIZED AS SIMPLE MASS ARRANGEMENTS.

ANALYSIS AND STATEMENT OF PROBLEM.

Before the pupils take the first step in the solution of any problem it should be studied in a general way. The pupils should be interested in the problem as a problem, led to see the propriety of the proposed decoration, and the nature of its service as an aid to the structure and beauty of the form decorated. The steps involved should be next considered in the order followed by the teacher in her own study.

This class should first be led to discover the mass or masses which will best serve the desired purpose, these being considered in the light

of structure, balance, rythm, variety, unity. The masses decided upon, the pupils should next consider how they may best be broken up, and if conventional matter is to be used, the particular nature of that which is best suited to the pattern. In the light of such study they should be prepared to understand exactly what the lesson includes, and to solve the problem when stated to them in definite and specific form, as—"Make a design for a book-cover measuring 5 x 9 inches, the design to consist of the word 'Notes,' and a square decorative unit beneath the title, etc."

Much advantage lies in this specific statement. By it the problem is taken out of the realm of the abstract and is made concrete, in terms with which the pupil is familiar. The professional designer always has a distinct problem before him; the beginner should see his own work as definite. The latter should never be directed to make a design, without being completely informed as to the nature and purpose of the pattern. Through such statement he learns that every problem can be reduced to simple and definite form, and learns, too, that the questions he has to solve are identical in kind with those of the practiced designer.

DEVELOPMENT OF THE PROBLEM.

It was pointed out that, in his analysis of the problem, the pupil is to be led to discover certain steps as essential to the solution. These should be taken up seriatim.

1. *The planning of the masses.* The main masses should be decided on with careful attention to the structural qualities of the space decorated; the elements planned should be seen to confirm the structural relations. Simplicity is a virtue to be constantly referred to. If the design is at all a complex one, careful attention should be given to the various spaces created in the background of the pattern. The background it is to be remembered always forms a part of the design, and should receive as much attention as the decorative elements placed upon it.

To assist the pupil to realize how far small changes in the mass arrangement effect the design, it will at times be found convenient to cut out of paper, two or three of the chief elements of the pattern. These may be placed on the space to be decorated and moved about until satisfactory relations of background and pattern are established. If the masses thus planned are not right in size or shape, others may be made. When the best arrangement has been decided upon, a pencil may be run round the edges of the templates, and the pupil led to consider the next step in his work.

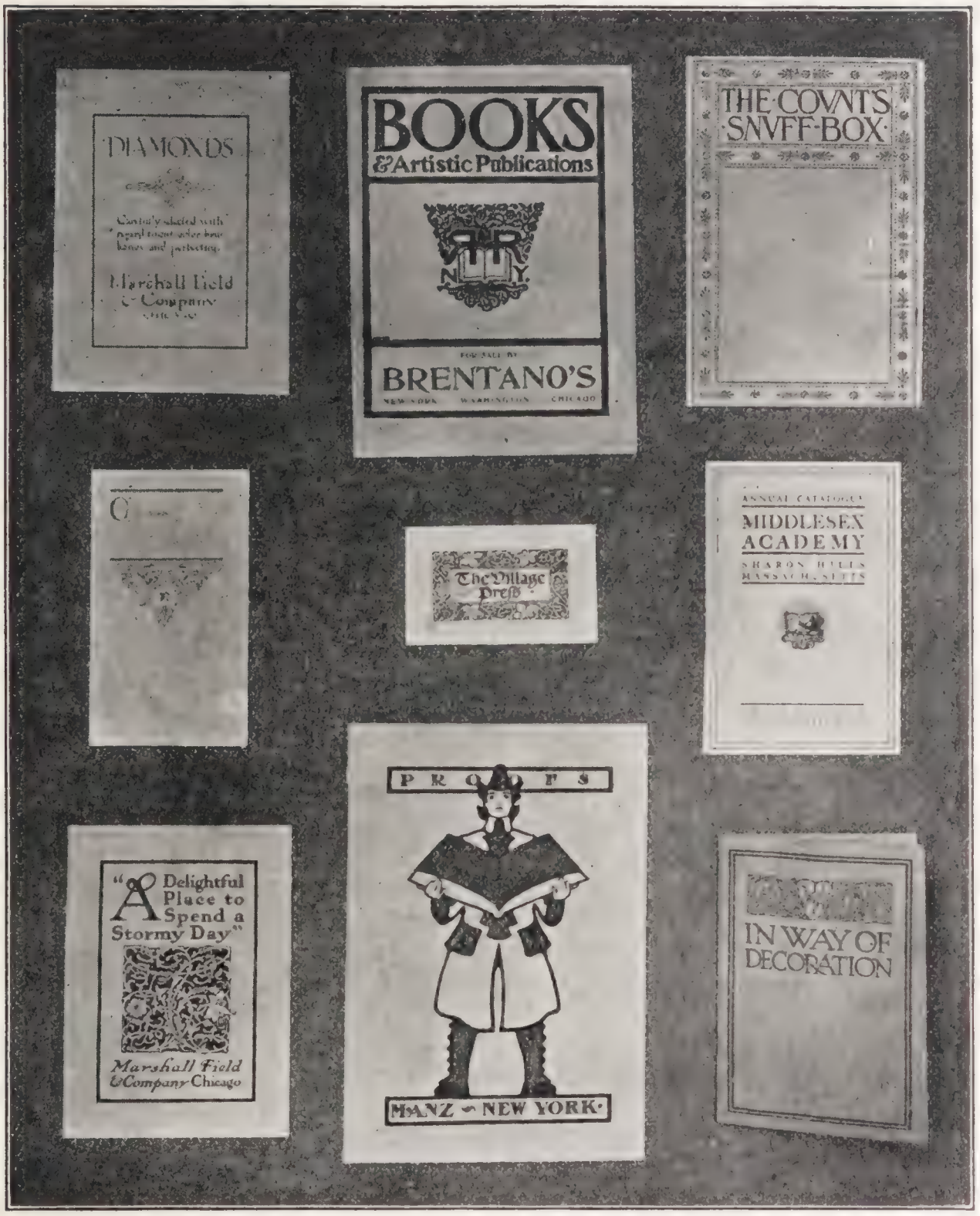


FIG. 4. CHART AND PAMPHLET COVERS MADE BY PROFESSIONAL DESIGNERS.

Some cautions are to be noted in regard to the planning of the pattern. As a general rule the design should not crowd the edge of the space decorated. If there is a panel within, such as occurs in box-top or similar designs, greater color unity will result if the tone of the panel is repeated in a narrow mass surrounding the entire design. (See Fig. 7.) A similar margin will lend to the effectiveness of nearly all patterns;

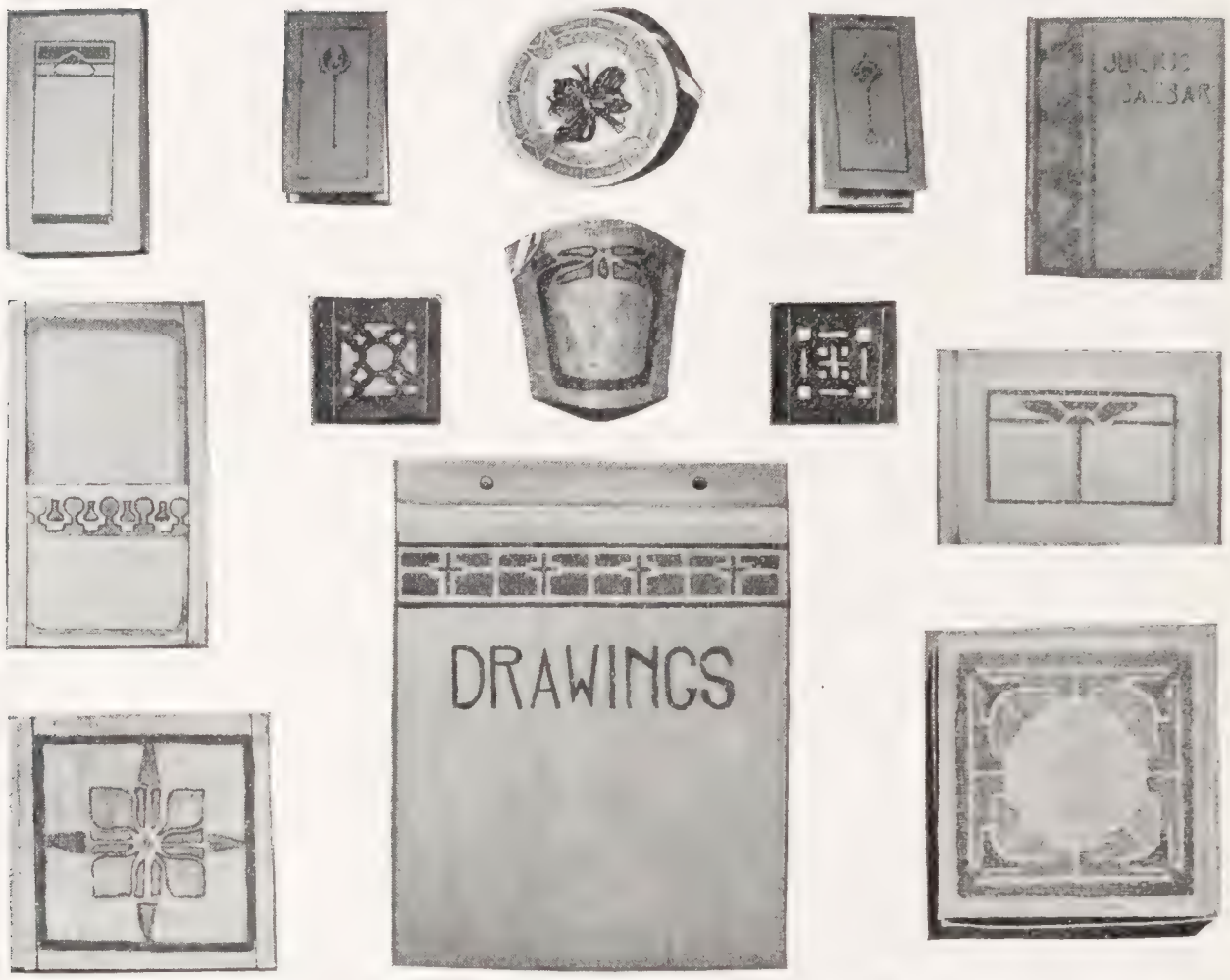


FIG. 5. EXAMPLES OF PUPILS' WORK—5TH TO 8TH YEAR.

its value lies chiefly in the fact that it emphasizes the outline and so lends to the structure of the space decorated.

It is surprising to what extent strength of structure may be altered by lines which are allowed to impinge on the border of an enclosing space. Fig. 7 shows a rectangle which has its squareness entirely destroyed (in a) by a curve which draws in the sides, and (in b) by radial lines which contract the corners. The dotted lines show the directionin which the sides appear distorted. The third figure (c) has had the squareness of the form strengthened by the small masses which support the corners. The angles of this and similiar forms, are structurally their most important elements.

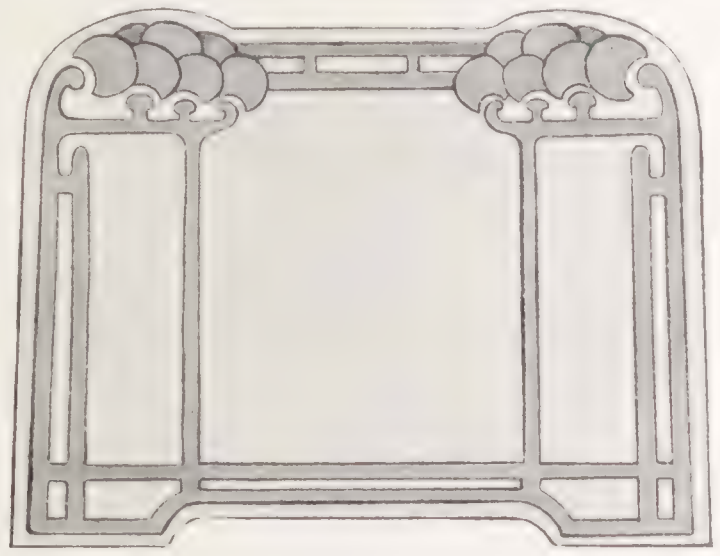


FIG. 6. RACK-END DESIGNED BY 8TH YEAR PUPIL.

In general the development of very large masses is to be depreciated, as is the development of large elements connected by very slender straps, or large straps connecting masses which are insignificant. Also to be avoided is the creation of strap or leaf-like forms which do not follow and support the lines of the main space, but introduce a number of curved lines, which draw the eye out of the enclosing boundary. Such elements, common enough in pupils' designs, destroy the strength of the enclosing line and weaken the entire pattern. (See Fig. 8a).

Of the various devices for expediting class work, two or three may be mentioned. The first looks to the development of the symmetrical halves of a pattern having masses with subtlely drawn curves. Such symmetry may be secured by folding the paper on which the trial drawing is to be made, and indicating the general outline on either side of the fold. After the main masses have been planned and very carefully drawn on one half of the pattern, the latter may be folded on the mid-crease, and a reproduction of the mass arrangement made by rubbing. The design for a square or oblong may similiarly be made by creasing the paper at right angles and developing one-quarter of the pattern, which may be transferred by rubbing to the other corners. (See Fig. 14).

Decorated units, especially the simple forms of the lower grades,

may also be made by folding and cutting. The tablets thus devised will serve as templates and may be traced as frequently as is desired.

2. *The development of the masses.* In the development of the masses the teacher should have constant recourse to the blackboard, the pupils also being called upon to illustrate their understanding of the problem by sketches made before their fellows.

Particularly should the advantage of a growth point be emphasized in the development of each mass. Radial growth it will be well to have

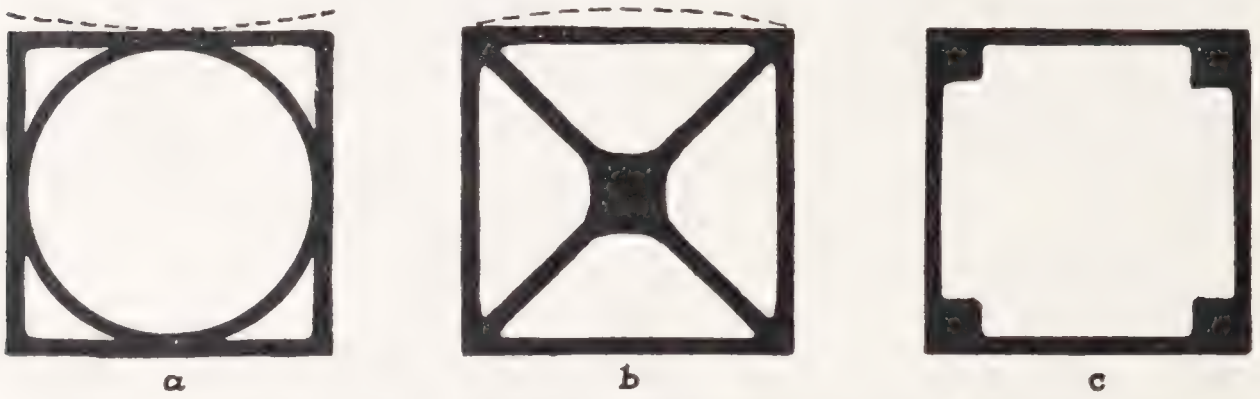


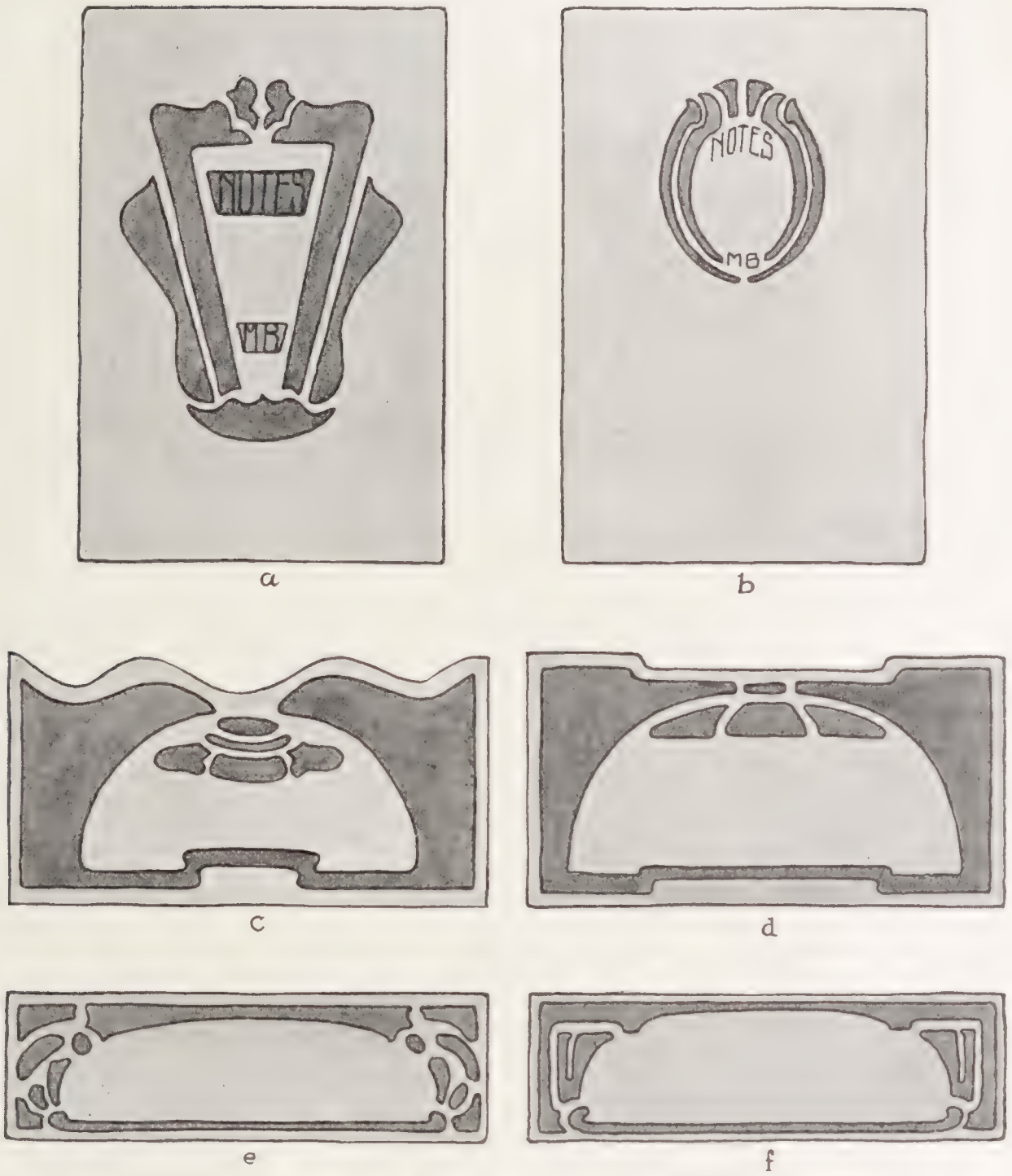
FIG. 7. STRUCTURE OF SQUARE AS AFFECTED BY LINES WITHIN IT.

developed from a definite mass and not from a mere point. The latter lacks the strength of the former. (See Fig. 9.) The necessity of having but two or three leading lines, and of securing rhythm, variety and unity in the forms created must be strongly brought to the attention of the pupils.*

The chief cautions to be observed are, the avoidance of contrary motion in the patterns, the avoidance of small elements and of explosive movements caused by too many radial lines. Also to be depreciated are weak and uncertain lines, adversely criticized in a foregoing paragraph. The pupils must learn that every line in a design should have a definite function and a definite movement, and that no "feebly flapping" element, born of a line which does not know where it is going, is to be tolerated. When the young designers come to separate the minor elements, one from another, they are also to be cautioned not to open wide spaces between them. Should they do so the strength of the original masses will be destroyed. (See Fig. 8 e.)

At this stage of the pattern it will be well for the pupils critically to review their work. The best of the examples should be shown and commended for excellencies of structure, growth, rhythm, consistency of elements, etc.; the poorer should also be examined that the cause of

*See article on Applied Design, Maunal Training Magazine, Oct. 1905.



a b c d e f

FIG. 8. POOR DESIGNS WITH SUGGESTIONS FOR THEIR CORRECTION.

their weakness may be determined. After such review pupils should be required to refine their patterns, making commonplace curves more subtle, perfecting rhythms and strengthening weak points in structure.

3. *Introduction of subject matter.* Anything like a thorough study of conventionalization cannot be taken up in the elementary school, nor in the high school unless unusual time offers. The teacher will, therefore, be wise if she attempts to secure little beyond the individual adaptation of conventional elements to the masses of the pattern already devised. The elements referred to should be offered in the form of charts. The sources of the various forms should be explained, but it is not necessary,

nor is it often possible for the pupil to develop elements directly from natural forms. If he but will adapt the forms offered him, there will be abundant cause for congratulation.

Before the worker is called upon to use such conventional elements it will be well that he have some practice in shaping them to various spaces. This practice may be given by having him make a number of units with brush strokes, using the motifs offered and combining them in various ways to make flower forms resembling those shown him by the teacher. (See Fig. 10.) Some little practice in this way will enable him to make a sheet or two of original elements very similar to those shown on the charts. He may then proceed with promise of success, to the development of similar forms in the masses of his design.

In adapting the subject matter to his pattern the pupil should be reminded to suit the character of the element to the peculiar nature of the design in hand. The more rigid and formal the pattern, the more formal should be the conventionalized material. This desired formality can be secured by the use of right lines and square angles in the place of curves and rounded forms. (See Fig. 6.)

The devices used by skilled workers to simplify patterns containing subject matter, can only be learned by a study of a large number of professional designs. Two, however, may be mentioned as particularly helpful. The first is the agglutination of details which overlap or impinge upon one another. (See Fig. 11.) This produces what is virtually a motif in silhouette. The second is the surrounding by a strong outline of those particular masses which play an important part in the rhythm of the pattern. (See Fig. 12.) When circumspectly applied, the latter will often materially strengthen a confused and unsatisfactory design.

SYMBOLISM.

The use of motifs particularly related to the form decorated, or to the designers themselves, is to be commended. This gives to the subject matter a symbolic significance. Such matter may include Indian motifs in a design for a note-book on Indian life and legends, or employ loaves and fishes for a collection of receipts made in the school kitchen. The wide application of symbolism cannot be discussed here, but class teachers will find it lends an added interest and personal element to all work in which it enters. It contains the hint of hidden meaning, and the suggestion of the personal—very attractive to the youthful worker.

Symbolic elements associated with the school may be devised and adapted to this end. These may include the school flower, the school

pin, banner or favorite tree. For the most part, the skillful utilization of this material must be left to older pupils.

TRACING.

When the design has been completed by repeated correction, it will have to be traced upon the form to which it is to be applied. Various devices offer here. If it has been made with a moderately soft pencil

FIG. 10. PRACTICE UNITS MADE WITH BRUSH.

and presents sharp clear outlines, a satisfactory rubbing may often be made upon paper, wood, or any light colored and smooth surface. If this is impossible the back may be blackened with a soft pencil, and the tracing made with a hard sharp-pointed one, or tracing paper may be used as purchased in the shops, or manufactured of thin wrapping paper which has been given a coat of stove polish. The latter paper is easily prepared, costs but a trifle, and forms a satisfactory substitute for the commercial article.

CLASS CRITICISM.

During the development of any pattern the pupils should be repeatedly called upon to criticise their work. So far as possible this should be a class exercise, the examples being placed where all may see them. It is important that this critical review be undertaken first after

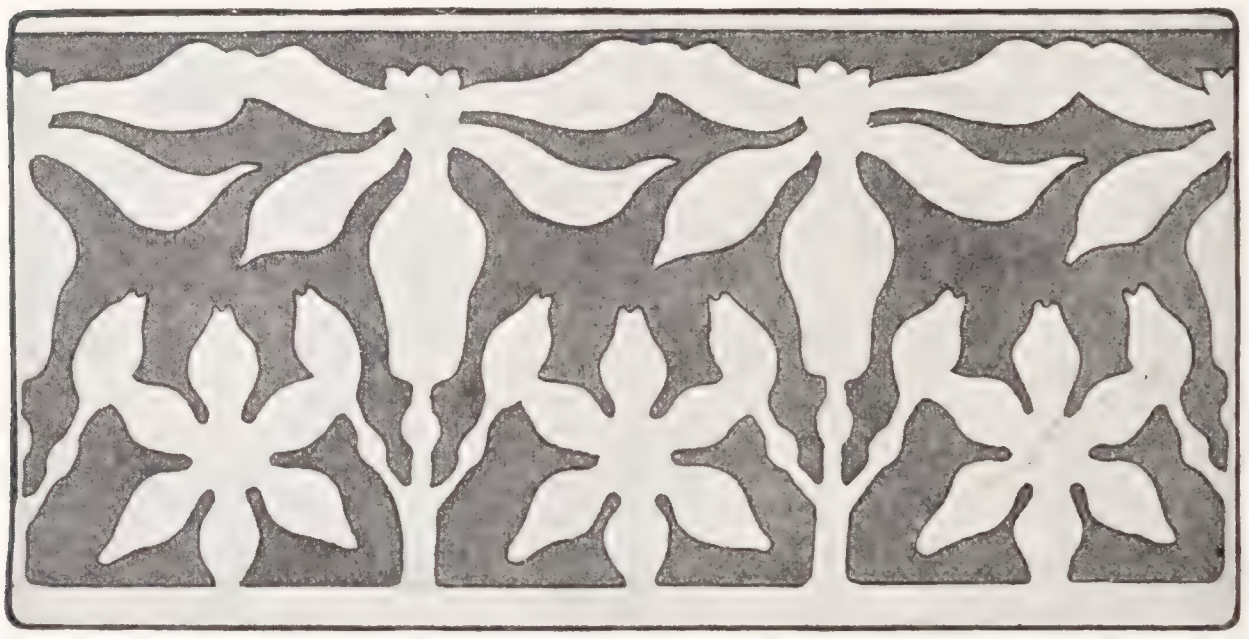


FIG. 11. AGGLUTINATION OF ELEMENTS OF SUBJECT MATTER.

the masses have been developed, and again after the subject matter has been introduced.

The steps of the criticism should be systematic, the pupils being called upon to examine the work from the standpoints of structure, balance, rhythm, variety and unity. It is not enough for those who criticise to say that they do not like this or that element in the design. They should state their reasons, and indicate the principles that have been violated and the manner in which the correction is to be effected. They should, in other words, criticise in terms of design.

It is impossible to note all the forms of error which may be present in the work of a class, but two or three examples may be suggestive as to types of mistakes and their correction.

Fig. 8 (*a*) shows a decorated unit designed for a book-cover. This is poor in structure, its outline weakening the enclosing oblong. It is far too large a unit, and the title which it presents appears relatively unimportant.

No minor change can make this into a satisfactory form. Correction may perhaps best be effected (see b) by reducing the size of the unit,

by strengthening the boundary line (developing it as one smooth flowing curve), dropping the lowermost element altogether (welding it with the bounding mass), rythmically relating the space with the initials to the nearby elements, and simplifying the smaller masses shown above. Finally, the word "Notes" may be made to play a definite and import-

FIG. 12. PATTERN SHOWING USE OF FINE LINES FOR DETAILS AND STRONG LINES FOR MASSES.

ant part in the design. Thus while the original idea has been retained the design as a design is improved. The improvement however has necessitated complete redrawing.

Fig. 8 (*c*) shows a design which requires less change. The mass arrangement is here well placed but too large and uncertain in its inner line, the enclosed panel being poor in shape. The latter is also weakened by the hanging unit above which is not well related to the general mass.

Correction is to be effected (see d) by reducing the size of the mass, strengthening the inner line into one decided movement, and simplifying the panel by the inclusion of the hanging unit in the mass of the pattern.

Fig. 8 (*e*) shows a pattern in which the mass arrangement has been well planned, but one in which the pupil has failed to develop the details properly. The minor elements have the appearance of being simply drawn over the original mass and not developed by tentative lines of division. Rhythm is lacking in the elements and contrary movements appear; there are too many small parts and growth is not well main-

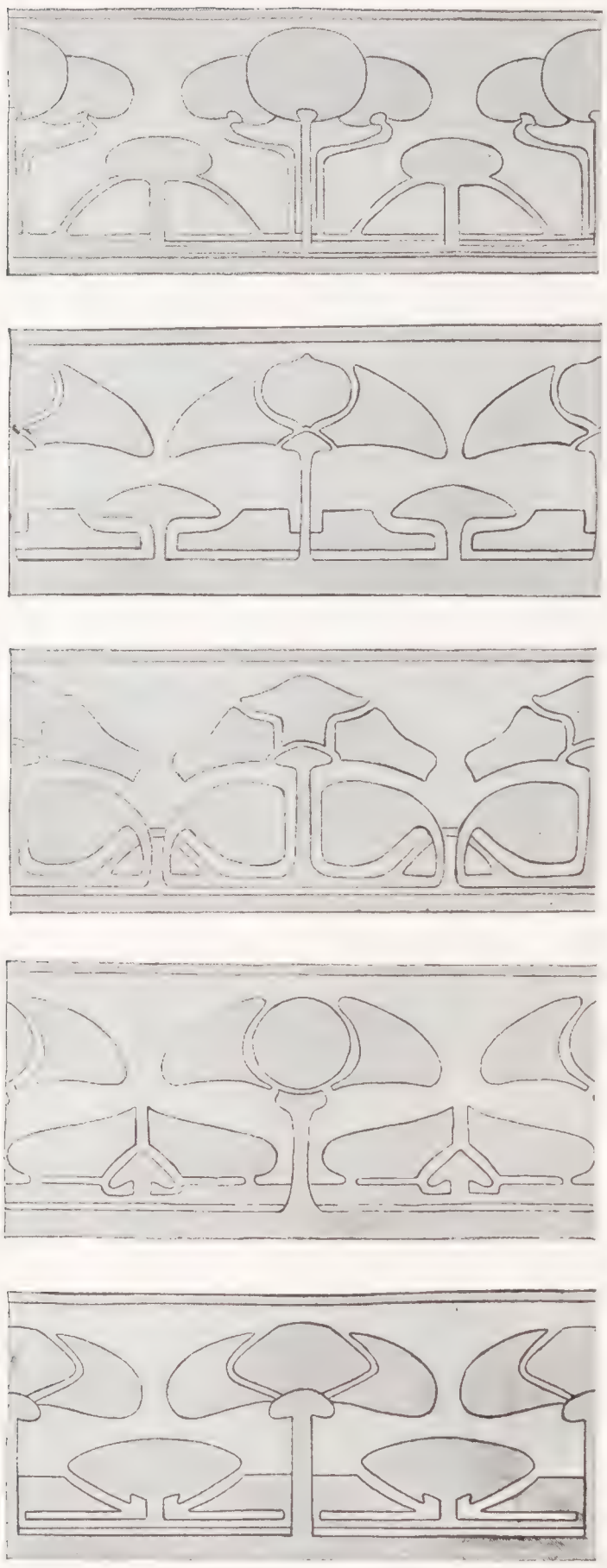


FIG. 13. BORDERS FOR PIANO COVERS, DESIGNED BY 8TH YEAR PUPILS.

tained. The separate elements are also so far apart that they have a scattered appearance. Variety has been secured, but improperly secured at the expense of unity.

This design is to be corrected (see f) by uniting the smaller elements with the larger, by reducing their number and establishing a definite movement of growth from the ends of the lower strap of the pattern. The original mass arrangement is left unchanged, but the minor elements are welded and have the lines between them refined in curvature. This form of error will be apt to appear in any case where a class teacher has carefully supervised the planning of the decorative mass, but has not led her pupils by definite steps to its development.

SUMMARY.

In the foregoing discussion two general principles have appeared as essential to the success of the teacher who essays to teach design, the first, that she know exactly what she wants to do, the second, that she bring her pupils to know what she

wishes them to do. The one requires analysis of every pattern before it is presented, the other can be insured by developing each problem step by step, remembering always the abiding merit of good example. So led, the pupil can be made to assume greater responsibility in each new lesson. If at any time he fails to do right, it will be, nine cases in ten, because he does not know what is right.

Some may be prepared to cavil at so slow procedure along the path which leads to the doing of original work without let or hindrance, but the advantage of the method appears when a class so instructed is required to devise, unaided, decorations for forms which are new to them. It should be the practice to give such "test problems" from time to time to the more advanced pupils. The results secured should be criticized in the same manner as other class-work. Experience has shown that when such tests are given to pupils taught as suggested, they reveal a power to devise commendable decorations, far in advance of that of pupils instructed on "free" lines. After all, the proof of the every pudding lies in its eating.

FIG. 14. A COMMUNAL EXERCISE—PIANO COVER DESIGNED BY A GROUP OF 8TH YEAR PUPILS.

WOOD BLOCK PRINTING—A STUDY OF THE ART AS PRACTISED IN INDIA AND JAPAN. ITS APPLICATION TO ART TEACHING IN THE SCHOOLS.[1]

ARTHUR WESLEY DOW.

WOOD block printing is a very old art of Oriental origin. Its value and interest to us as educators lies in its character as both a useful occupation and a form of art expression. It is at once an art, a craft, an industry, and an educational process. Its principle may be applied in a rude and primitive way, as by the Hawaiians, to stamp brown patterns on tapa cloth with a paddle, or it may take the form of painting in complicated color designs as in the prints of the Japanese. By the engraved line-block may be rendered the most delicate tones, as in the engravings of Cole or Kingsley. The forms of wood block printing are many, but at this time I wish to speak mainly of those which are adapted to use in the schoolroom, dividing my paper into two principal topics:—

1. The art of wood block printing in India and Japan—description of the processes.

2. Educational uses, with illustrations and description of experiments.

I

The traveler who makes a study of the handicraft and occupations of the world, particularly of Eastern peoples, finds that certain kinds of work combine unusual manual skill with art appreciation. Wood block printing is one of these. In the first place there must be a design, a combination of lines or spots within a certain space, and not only that, but a calculation of the effect of repeating the unit. This creation of the design is purely *fine art*, however simple it may be. Then follows the cutting of the block—skilful manipulation of the knife and practical knowledge of the mechanical process. Then the preparation of the cloth or paper, and the mixing of dyes. Finally the printing, with opportunity for variation in spacing, and for modifications of color-schemes:— fine art again, with its invention, choice, imagination and appreciation.

Though pictorial printing is included in this discussion, we shall give textile printing the preference, as this process has more possibilities of application in art education.

[1] Paper read at the convention of the Western Drawing and Manual Training Association, May, 1906.

Those of you who have inspected a collection of choice examples of old Japanese pottery, must have noticed the peculiar way in which a tea bowl is protected. First, a plain wooden box tied with tape. Next, a bag of old *printed India cotton* enclosing another box of lacquered wood, or plain wood of finer workmanship. Within this is the tea-bowl wrapped in silk brocade. These bags of old India calico first attracted my attention to the cloth printing of India. The oldest patterns are very beautiful in design, color and texture. With fine discrimination the Japanese use this cloth for the second wrapping, as being inferior to silk brocade. When the opportunity came to visit India, I determined to investigate the subject of textile printing, and to see if any of these old patterns could be found. The quest for the rare examples proved unavailing it is needless to say. Like many another handicraft this one has suffered from the modern spirit of cheap and quick production, and from the inroads of the European commercial agent. It is now cheaper to buy cloth printed in Austria or Germany or England, in imitation of Indian patterns, than to weave and print it by hand.

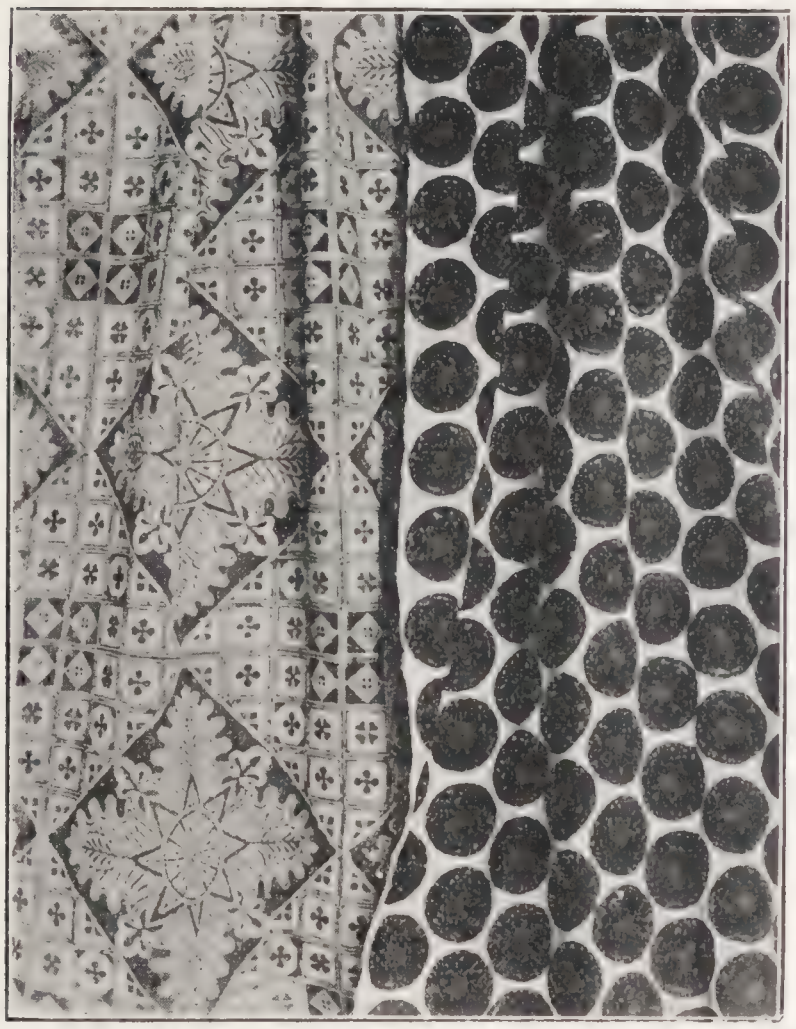


FIG. I. COARSE HAND-WOVEN CLOTH, PRINTED IN COLORS WITH WOOD BLOCKS. NORTHERN INDIA.

But the art is still practised, and will be for some time to come. As far as my observation goes, the Mohammedan people of India are the principal ones to use the process. As you pass along the narrow street of some town in the Punjab, or in Rajputana, you see the little shops of the cloth printers and the men at work. Some of these are printing white squares of cotton or linen in line patterns of black, or perhaps one color; some are printing those large curtains with the elaborate Persian figures.

The cloth for these may be of English make, or woven on looms imported from England. But here and there you will find the real hand-woven Indian cloth in pieces of eight yards, or in large squares with designs which make you think of the old Assyrian art. Here is a shop stuffed from floor to ceiling with rolls of this cloth. The smiling merchant pulls

FIG. 2. COTTON *sari*, PRINTED IN ONE COLOR AND IN THREE COLORS. RAJPUTANA.

them down for you, pattern after pattern, dislodging clouds of choking dust, but revealing color schemes and figures in fascinating variety. (Fig. 1.)

You will not be satisfied, you must see the whole process. You seek the weaver; his house may be of clay with straw roof, and lighted only by the door way. The loom is very primitive and curious. The warp is fastened to pegs driven into the ground, and is stretched within an inch of the earth floor, so low that the weaver has excavated a hole for his feet. I have not the time to speak of the silk weaving of old cities like Madura or Benares. In Benares there were once many thousand weavers—now only a few hundred.

The pattern weaving where the little boy sits by his father's side and weaves the border, the carpet weaving, all this I must not touch upon now. The plain rough cotton cloth is often dyed before printing. The dyers have *their* shops on the street, or *in* the street, for the great kettles of dye, the brass and copper pots and pans are all about the door. You may stand and watch the process in all stages. The dyed cloth before

printing, and sometimes after printing is laid upon the bare ground to dry. Stones are placed upon the corners to keep it down. It gets a nice gray quality from the dust of the street—perhaps there has been no rain for three months.

The printer sits on the ground, or on a bench before a low table. There are several thicknesses of cloth on the table to serve as a pad to strengthen the impression. The blocks are made of pear tree, and the figures engraved upon the end of the grain. This is not a universal rule, however. The cutting is usually deep, say three eighths of an inch, and the knife goes down vertically. Some of the blocks are fitted with handles. All extra wood is cut away close to the design, so that the printer may see the edges and be able to register correctly. [1]

FIG. 3. "TIED" CLOTH WITH DESIGN IN BLACK, WHITE, YELLOW AND RED. RAJPUTANA.

The colors are ground and mixed with an ill-smelling paste. In each pot of color floats a piece of thick cloth like felt. The printer dips his block into the color, shakes off the superfluous liquid, and stamps the cloth, pulling it past quite rapidly.

It will not be out of place here to refer to two other methods of printing figures on cloth. One is practised in India, the other in Japan. You may see the neighbors of the calico printer engaged in tying strings around little bunches in a piece of cloth. The people are sitting in the midst of dye pots; their hands and clothes are stained with color; the house and the ground itself are spattered with red and black and yellow and green. These little bunches are simply the figures of the cloth. A string is wound on for each color. The cloth being folded in four or more thick-

[1] Blocks for single color and for set of colors were shown at the convention.

nesses, an elaborate pattern can be devised, unwinding a string for each dipping in color. (Fig. 3).

The other process is the familiar stencil printing so common in Japan. The printer has a very long wide board upon both sides of which he stretches the piece of cloth quite wet. The stencil is made of lacquered paper and has pinholes for registering. The color is applied

FIG. 4. COTTON TOWELS PRINTED IN BLUE, AND IN COLORS BY STENCIL PROCESS. KYOTO AND NIKKO, JAPAN.

with a thick short brush. The printer has wonderful skill; he does not blot the edges, he prints in many colors with perfect registry, and works very rapidly. When both sides of the board have been printed, it is set up endwise in the yard to dry. This, by the way, is the Japanese method of ironing. Clothes are stretched on a board, and set outside the door, in the street, probably. The common white cotton towels are printed with stencils in two ways: sometimes by applying the color directly, sometimes by using a "resist" mixed with paste, and afterward dipping in indigo dye. While the design is usually in blue and white, other colors are often introduced—even landscapes in full color. (Fig. 4). These processes of dyeing and printing have been illustrated by Hiroshige and by Hokusai.

Wood block printing as a *pictorial* art is very familiar to us all. The whole process of making the Japanese color print has been described over and over again, and very fully illustrated.

This form of the art came from China. The older Chinese books are block-books. That is, each page, or set of two pages, is engraved

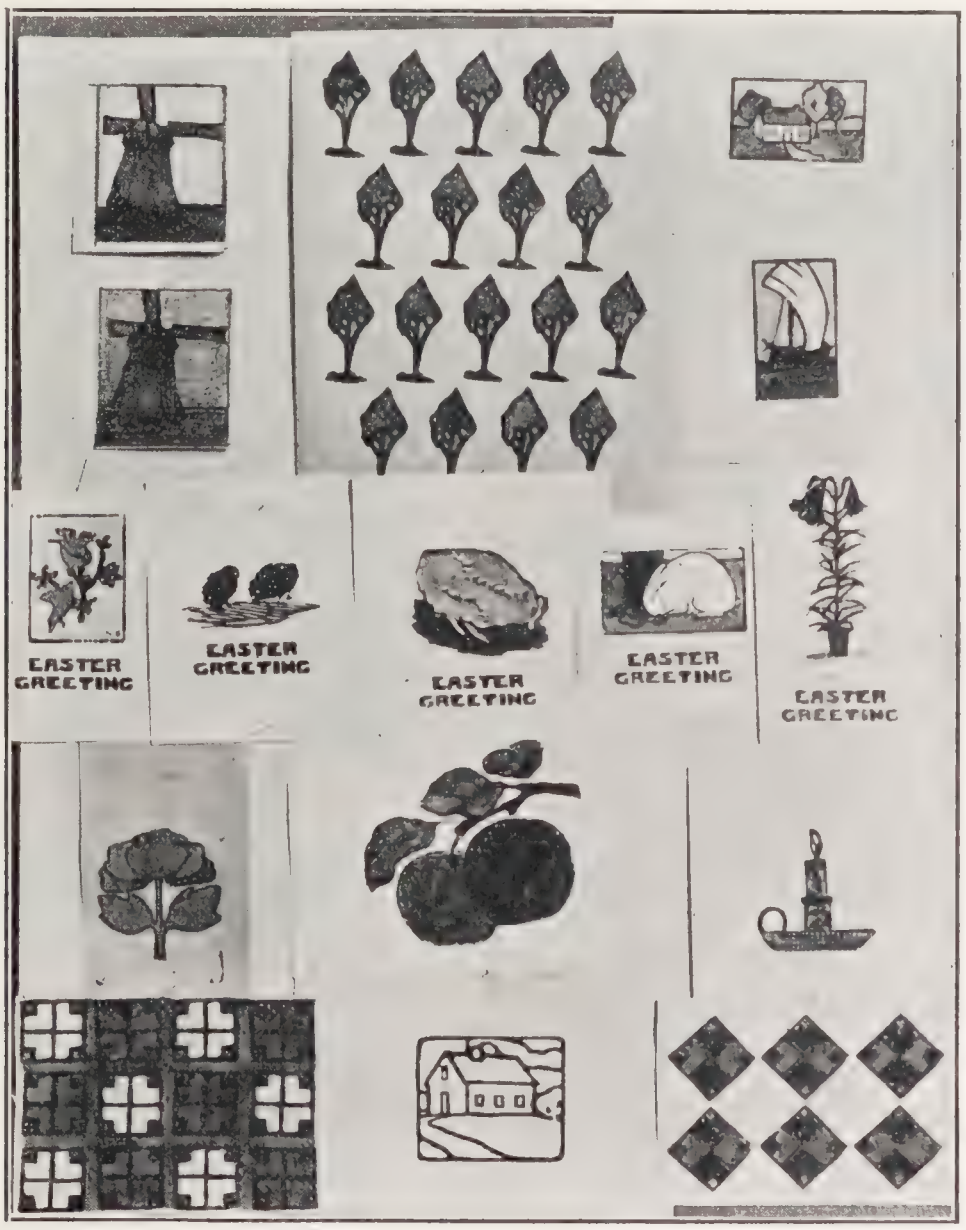


FIG. 5. OUTLINE BLOCKS FOR TONE OR COLOR LESSONS. THE EASTER GREETING, APPLES AND FLOWERS WERE PRINTED AND COLORED BY CHILDREN IN THE HORACE MANN ELEMENTARY SCHOOL; THE REST BY KINDERGARTEN NORMAL CLASS.

on the flat side of a board. The author has only to write his book on sheets of thin, sized paper, using the flexible brush and very black ink. The engraver pastes the sheets face down upon a block and reproduces every line. The printer can give the author not only his own words, but the actual touch of his pen. In China and Japan one may still see the engravers and the printers at work in this primitive but very artistic

fashion. It is hardly exact to use the word "shop" in referring to these printers. A man's shop is where he happens to be. The process is so simple and the tools so few that he can carry his shop with him tied up in a handkerchief. The printing press is only a disk of bamboo called "baren," but as one examines this disk he finds it a very peculiar

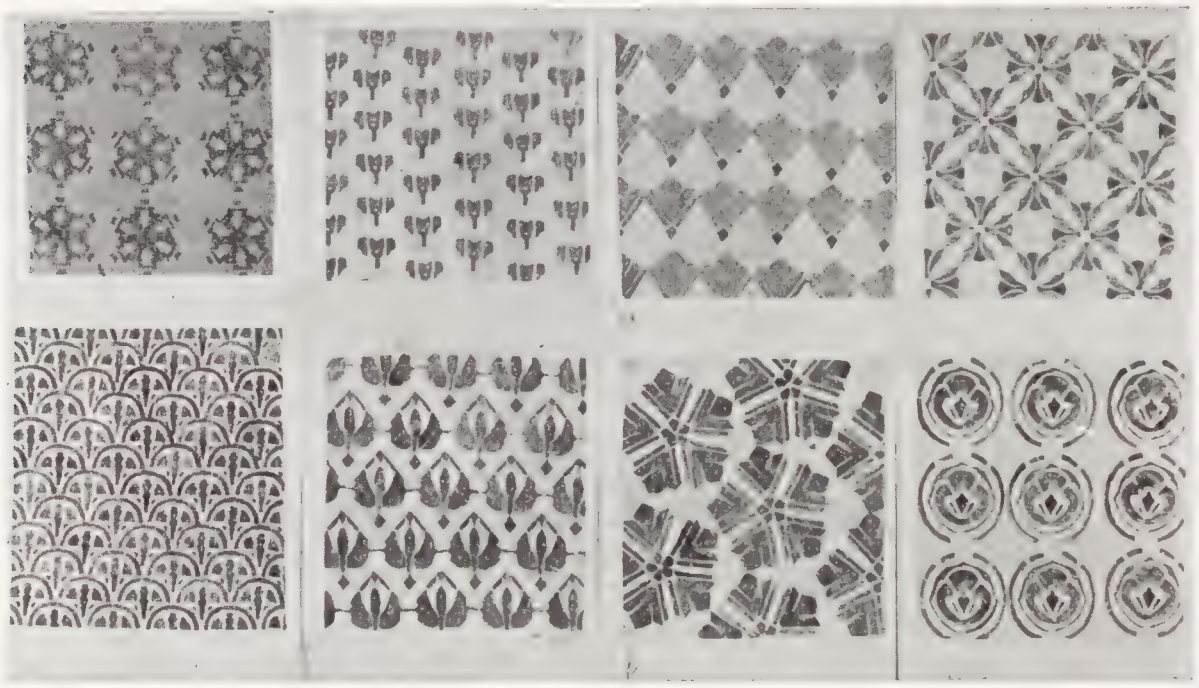


FIG. 6. SPACING AND COLOR SCHEMES. WOOD-BLOCK PRINTING BY PUPILS OF THE HORACE MANN HIGH SCHOOL, TEACHERS COLLEGE, N. Y. CITY. BLOCKS DESIGNED AND ENGRAVED BY PUPILS.

and ingenious implement. There is a pasteboard cover slightly turned up at the edge. Within this lies a braided mat of bamboo fibre, a miniature of the braided mats of our grandmothers, and sewn in exactly the same way. Over this is stretched a leaf of bamboo, very skillfully twisted into a handle at the back. This bamboo under the influence of the braided mat and the printer's "know how" makes the color jump from the wood block to the paper. [1]

Perhaps the most surprising part of this process is what we should call the "inking" of the block. Does your Japanese printer roll out his ink? "distribute" it nicely on a flat surface? No; he applies it as blacking is applied to a shoe, and with much the same kind of a brush. He *swabs* it on, all over the block, but he lays the paper so deftly that it touches only the raised parts.

[1] The "baren" or Japanese printing press; also a set of proofs illustrating the process of full color printing shown at the convention.

In my judgment there is but one kind of this Japanese pictorial printing that can be used advantageously in the schools. That is the early form where the line only is printed, the color being applied by hand. Color printing with many blocks is a pastime for artists, and an occupation for the experienced craftsman. The skill required in regis-

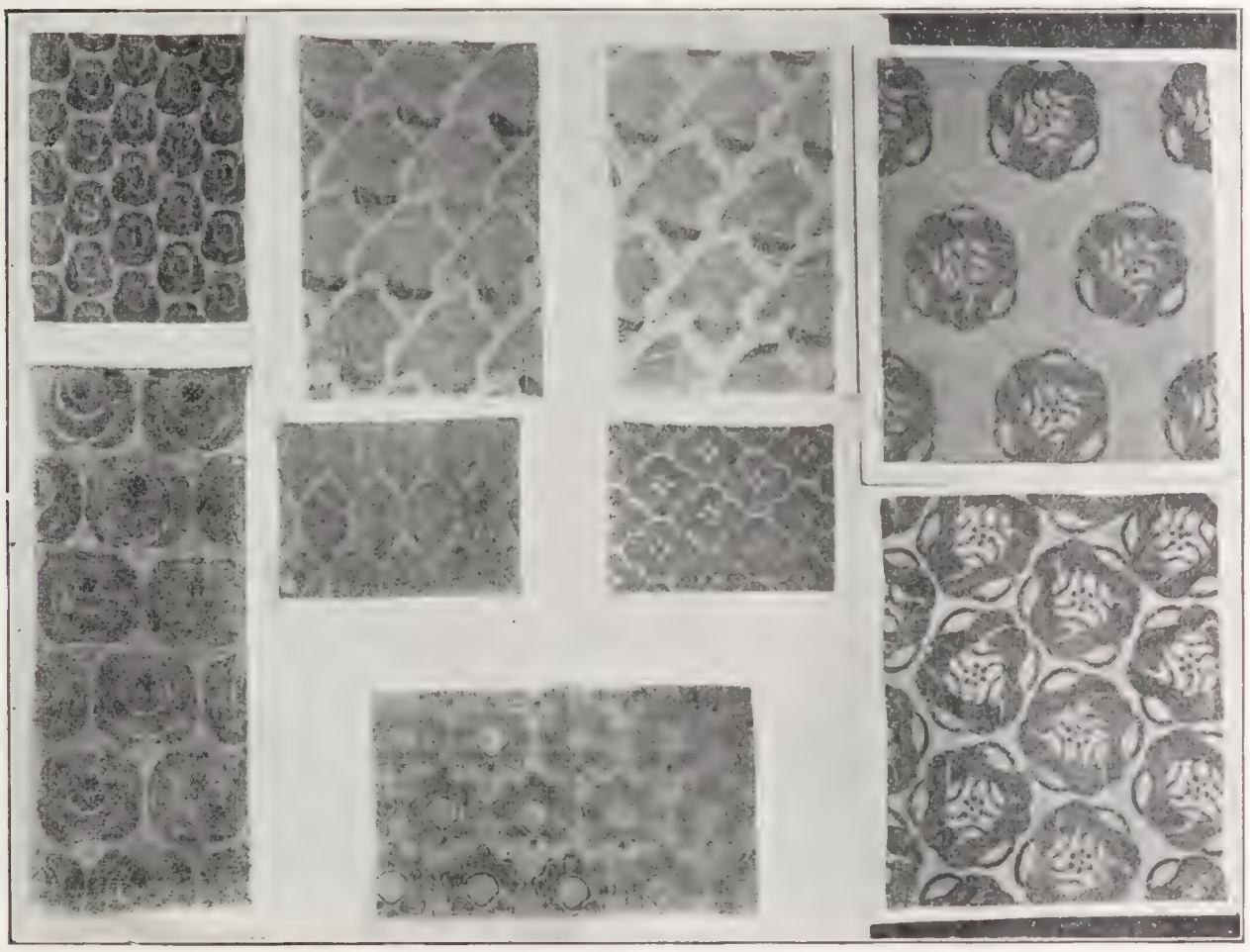


FIG. 7. PRINTING ON SILK. STUDIES IN COMPOSITION AND COLOR BY MARSHAL T. FRY AND PUPILS.

tering and the difficulties of color composition would class it with advanced painting or etching.

II

As I have indicated above, some forms of wood-block printing may be turned to account in the teaching of art. Even children in the elementary school may practice it to advantage. The first and most important reason for introducing it in a school course is that it furnishes a good incentive for the study of design. The child who undertakes to cut a block is very naturally led to discover what is meant by line harmony and space filling. If he discovers just a little, if he appreciates ever so slightly, he is starting in a path of progress. Here is an opportunity for the teacher to illustrate, to connect the lesson with the

history of art, and the history of industry, to stimulate the creative effort through the influence of fine examples.

The motif for the design may be sought in nature—flower, insect, animal, landscape—or in symbolism—in the child's own symbolism. He may be helped to express in design some of the things with which he is familiar. I saw one excellent design of circles and ogees, cut in wood and printed by a high school boy; the motif having been suggested by the flat-irons on his mother's stove. The teacher must guard against the misuse of symbolism. Unless the thought of design is the guiding influence, the pupil may easily wander into the grotesque, or the merely fanciful.

The cutting of the block is not only an exercise of value as to the use of tools and a training of the hand; it is a help in drawing, for the lines *must* be firm and sure, and the shapes must be definite. Another reason for the educational use of wood block printing is that it furnishes a logical, reasonable approach to the use of color.

In color work it is essential that the line pattern, whether a design or a landscape, should be fine in composition. Having designed a pattern as satisfactory as it can be made in this respect, the student of color can play upon it with his hues, giving his whole effort to relation of harmony of color. As good color is dependent upon a sound dark-and-light structure, the color work should be preceded by exercises in flat neutral tones.

The printing may be related to other studies in various ways. Its connection with the craft of printing, use of the press, illustration and the designing and making of books, is very evident. It can be used to illustrate botany and nature study. The textile printing may have direct application in household art. (Fig 8. Table covers and curtains printed by class in Household Art Design, Miss Helen Gaston, instructor, Teachers College, New York City.)

For schoolroom purposes, two forms of the process are available.

1. Printing on cloth with dyes or oil color.
2. Printing on paper with water color.

I am not inclined to advocate the general use of dyes for application to the blocks. The cloth itself may be dyed as a back-ground, but in my experience, it is difficult to get a dye for printing which will be permanent enough to withstand washing. If some one can find a way of printing a dye, and *fixing* it without an elaborate process of treatment, the dye might be used.

Oil paint is easily applied, and will resist a moderate amount of

FIG. 8. TWO LARGE TEXTILES—COLOR PRINTING ON LINEN, CLASS IN HOUSEHOLD ART DESIGN. COLOR-SCHEME BOOKS BY JUNIOR CLASS, TEACHERS COLLEGE, N. Y. CITY.

washing. Properly diluted and printed it will not injure the most delicate fabric. Refined turpentine is the best medium.

Many who have printed textiles with oil paint, prefer to charge the block with a brush. This gives the opportnnity to put two or more colors *on one block.* If you object to this as not quite in harmony with the spirit of the process, and as consuming so much time, the answer will be that you avoid the difficulties of registration and of cutting so many blocks. (Fig. 6. A and B—the same motif in different arrangements. Fig. 7. One of these patterns was embroidered after printing. Fig. 9. Printing on silk, linen and cotton, in oil color.)

In Fig. 8 are shown "color-scheme books" with printed cloth covers by the same class. One of these books has end-papers printed from a design cut upon *a spool.*

Under some restrictions, it is possible to let the young children print small mats in oil. In our Speyer School, the first grade constructed a model of a house, using oil paint to tint the walls. Needing oilcloth for the kitchen, they were taught how to print it with wood blocks, at first on paper, and later on cloth.

For printing in water color on paper, the pigment should be mixed with mucilage on a felt pad. Use a block for each color. In this way can be made the end-papers for books, designs on book covers, borders for posters, book-plates, and figured papers for various uses. (Fig. 8.)

For printing in black outline in the schoolroom, the pad may be charged with ordinary "marking ink." It is black, dries quickly, is waterproof, and costs but little. The subjects of outline prints in the lower grades might be designed by the teacher, or be copied from some fine example. Early Greek patterns, from the vases, brocades, architectural motifs from photographs, and picture books, are some of the sources for such design. Here again is the opportunity to bring to the children some simple form of good historic art, also to learn of the early wood engraving in Europe, the block-books, and the illustration of ancient books.

The ink outline print is useful for festival subjects like Christmas and Easter cards, calendars, and book covers. (Fig. 5.)

I have so far spoken in favor of the educational use of wood block printing. Are there not some dangers to be guarded against? Yes, there is the danger of making it a mere amusement instead of a study of art. The teacher who is insufficiently trained in art, who is perhaps a little unappreciative, who does not know how to subordinate *many* processes and

FIG. 9. PRINTING ON LINEN, SILK AND COTTON. STUDIES IN COMPOSITION AND COLOR BY JUNIOR CLASS, COURSE IN PRINCIPLES OF DESIGN, TEACHERS COLLEGE, N. Y. CITY.

many devices to the one purpose of educating the faculties, might easily let the children waste time and good material. This danger, however, besets all the crafts, and all the processes of the manual arts.

The wise teacher knows just how much of any one subject should be given to the pupils. He will always ask himself the question—"What is this for?" Two University presidents have recently said (in effect) that the aim and purpose of all education is to develop critical judgment and appreciation, Knowledge of truth is the beginning, judgments of worth the end of education. With such a goal before us in art education, we may use any process that will help onward.

POTTERY IN THE PUBLIC SCHOOLS, II.[1]

FORREST EMERSON MANN
WITH DRAWINGS BY BURTON A. MANN.

IN OUR first article[2] we gave our attention to hand-built or coiled pottery. This method lends itself to school conditions, first because of the simple equipment required and second on account of individuality given to the product by this particular process which adapts itself to intentional departures from symetrical regularity and admits of a disregard for so-called perfect form and exact finish. In this article the method of casting will be considered and this process affords an easy and sure way for reproducing pottery forms that are perfect in shape and light in weight.

Dry plaster moulds have the property of absorbing water and it is upon this fact that casting is based. If we pour a liquid paste of clay called slip into hollow plaster moulds, the water in the slip is instantly absorbed by the plaster and a hard shell of clay is formed over the inside of the mould. This shell becomes thicker the longer the slip is allowed to remain. When it is of the required thickness, the mould is turned bottom up and the liquid slip runs out leaving the firm coating adhering to the inner walls and reproducing all the curves of the hollow mould.

[1]

[2] Manual Training Magazine, January, 1906.

An easy way to experiment with this method is to take a simple form (Plate I, Fig. I) with no projecting parts—a bowl or a vase with straight sides or with a flare toward the top. Place this form bottom up upon a square of oilcloth such as used for floor covering. For the wall around the form, use a strip of the same material about two inches wider than the height of the vase (Plate I, Fig. III) and long enough to lap several inches and make a circle three inches wider than the diameter of the bowl. This wall of oilcloth is now held in a circular form by the use of strong cords at the top and bottom. The next step is to rub a slight coating of sweet oil or soapy water over the bowl and oilcloth to prevent the plaster from sticking to these parts.

Having arranged the wall around the form at a proper distance from it, we are ready for the plaster. Into a large open bowl, put water enough to mix a sufficient quantity of plaster to fill the mould. It is better to plan on having some over rather than not enough to cover the form. In mixing the plaster it is desirable to have it as porous as possible that it may absorb the waterreadily. M. Taxile Doat in his treatise on ceramies tells how to do this. The plaster of paris is gently sifted through the fingers over the surface of the water, all lumps being avoided in this way. Continue thus, adding the plaster until it begins to appear at the surface, indicating that the water has absorbed nearly all that it will. Allow it to rest until the mass is just about to harden, then stir thoroughly and mix the plaster well with water. Cease stirring now for a few seconds, then add a quantity of water equal to one quarter of the water used in the first place. This addition prevents the coagulation of the plaster. When the mass is about to harden again, stir it well and it becomes a thick pasty mass. In this condition quickly pour it over the up turned bowl and fill the enclosure until the form is covered to a depth of an inch and a half above the bottom of the form (Plate I Fig. II). It is necessary to work promptly and use the plaster before it becomes too hard to be semi-liquid, otherwise it will not fill in solidly, and large cavities may be left which will spoil the mould. As this is a one-piece mould, it may be left now to become firm and dry in a warm place. The oil cloths are removed readily now and doubtless the form inside will slip out easily owing to the oil used, if not a few gentle taps upon the plaster with a mallett will loosen the form so that it may be removed. If the mould is successful, we now have a smooth clean depression, corresponding in shape to the original form. (Plate I. Fig. IV).

Before considering the more difficult moulds, the use of the simpler one will be demonstrated. For this purpose the semi-liquid clay or slip

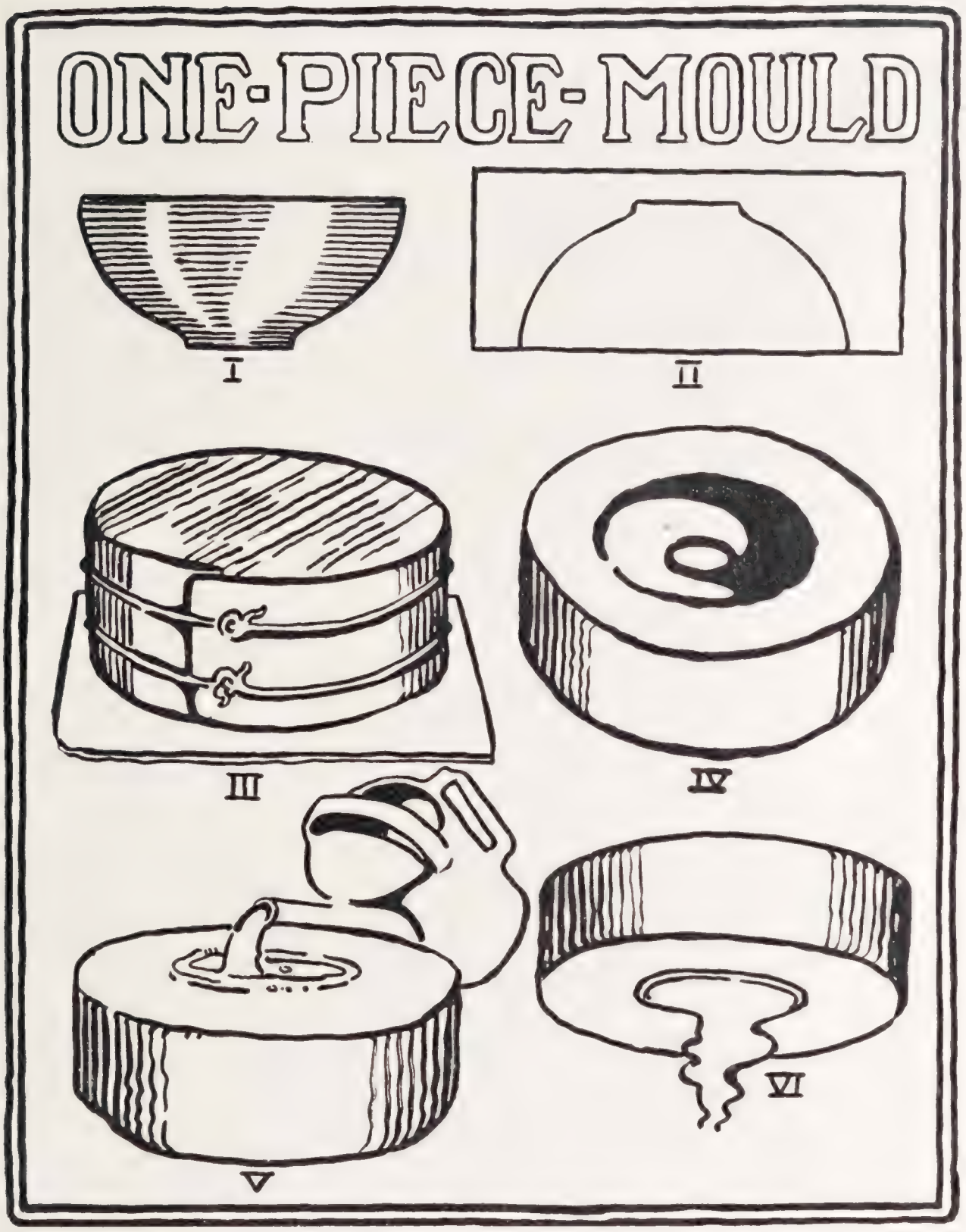


PLATE I.

must be prepared. In our first article, we advised the use of a clay readily obtained from the Star Stoneware Co., Crooksville, Ohio. The rolls of clay as they come from this pottery should be dried thoroughly and for small amounts of slip, they may be broken into course pieces and covered with water. In a day or two, this becomes a soft mass to which more water may be added and the whole worked into a pasty condition with the hands. This should be strained two or three times

through a large flour sieve until it becomes a smooth semi-liquid mixture.

If much casting is to be done it is convenient to make the slip in larger quantities using the clay if possible in powder form and adding it to the water as in the case of the plaster. An ordinary churn is often used and partly filled with water into which the clay is sifted from the hands. The churning thoroughly mixes the mass into a creamy consistency. The next step is to strain it through a seive to remove any foreign matter. An ordinary large-sized flour seive with a fine mesh will do and the slip may be strained into an earthen crock or better still, into a small cask with a large spigot at the bottom and a close-fitting cover. From this the slip may be drawn into an ordinary garden sprinkler which, on account of its spout, is convenient for pouring the slip into the moulds. Before doing this, however, stir the slip gently in the sprinkler, using a large wooden spoon. This is quite important as it removes the air bubbles from the mass. The spoon should not be removed until the bubbles cease coming to the surface.

The slip which now contained just water enough to be fluid is poured from the sprinkler into the mould which has by this time become perfectly dry in a warm place. (Plate I. Fig. V). Immediately the absorption of the water begins and the level of the slip gradually sinks from the top of the mould. This is again filled to the top as often as is necessary and when the edge of the opening shows a desired thickness of the clay, perhaps a quarter of an inch, the mould is turned upside down and the fluid center of slip runs easily out into the sprinkler while the firmer shell of clay remains covering the inner walls of the mould. (Plate I. Fig. VI). While the mould is still in the hands upside down, give it a circular motion which helps to keep the thickness of the clay more uniform on the inside. Now leave the mould still bottom up upon two sticks that the air may get inside and allow it to dry for an hour; then turn it over. The shape now begins to shrink from the mould and on the following day may be removed from the cast. The top edge which is rough and somewhat marred from the casting may now be straightened and smoothed into a finished opening. The form may now be decorated if decoration is desired, and then the whole is allowed to dry ready for firing.

Usually the plaster moulds are made in more than one piece on account of the shapes bulging in the center or being larger at the bottom, which prevents their removal from the one-piece mould. Our shape in the process just described was furnished by the ready-made bowl or vase used for the mould. The following is, however, the usual method:

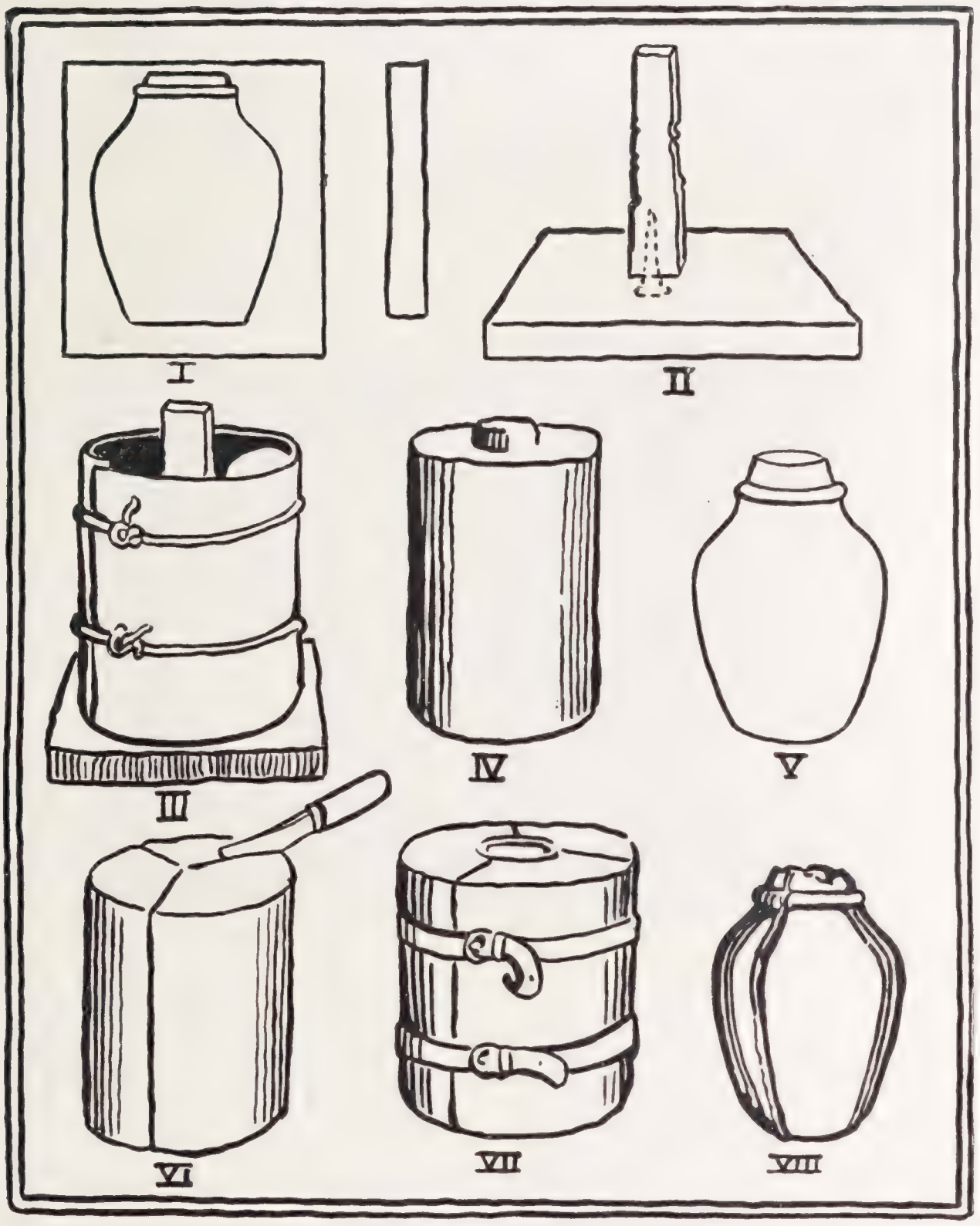


PLATE II.

First the vase form is designed and drawn out on paper in good proportion (Plate II. Fig. I). Upon the top is added a false rim or projection called the spare which is cut away after the piece is moulded. This does away with the rough opening left from casting. The next step is to reproduce this shape (Fig. V) in plaster. This is done either by turning the form upon a wood lathe from a cylindrical chunk of plaster, or by using a simple potters wheel made from a sewing machine frame.

The plaster for this form is prepared in this way:—Arrange the oil-cloth wall as before making a circular space somewhat higher and wider than the shape designed. If the work is to be done on a lathe it is necessary to have a wooden stick an inch and three quarters in diameter through the center of the cylinder (Plate II. Fig. III). Put some notches in this to prevent its moving after the plaster is dry. Fasten it with a nail (Plate II. Fig. II) to a wooden base and place the circular

wall about it taking care to have the upright stick as near the center as possible. Now mix the plaster in the ordinary way, sifting it through the hands until the water absorbs all it will and stir it gently with a wooden spoon. Now pour the plaster into the walled enclosure and allow it to harden and become dry. (Plate II. Fig. IV). From this the desired form is turned out upon the lathe, the spur being embedded in the wooden center. This gives a shape similiar to Fig. I. It is now smoothed with fine sand paper, shallaced and sandpapered again slightly until the surface is almost like glass (Plate II. Fig. V).

From this the plaster mould for the pottery form is made in as many pieces as is desired. In this case a three-piece mould with vertical sections is the most convenient. Proceed now as in the one-piece mould; cover the plaster form with a thin coating of soapy water and arrange the oilcloth walls as before, placing the plaster form bottom up within them, and allowing an inch and one-half space between it and the oil-cloth. Now pour in the plaster upon the bottom of the shape and allow

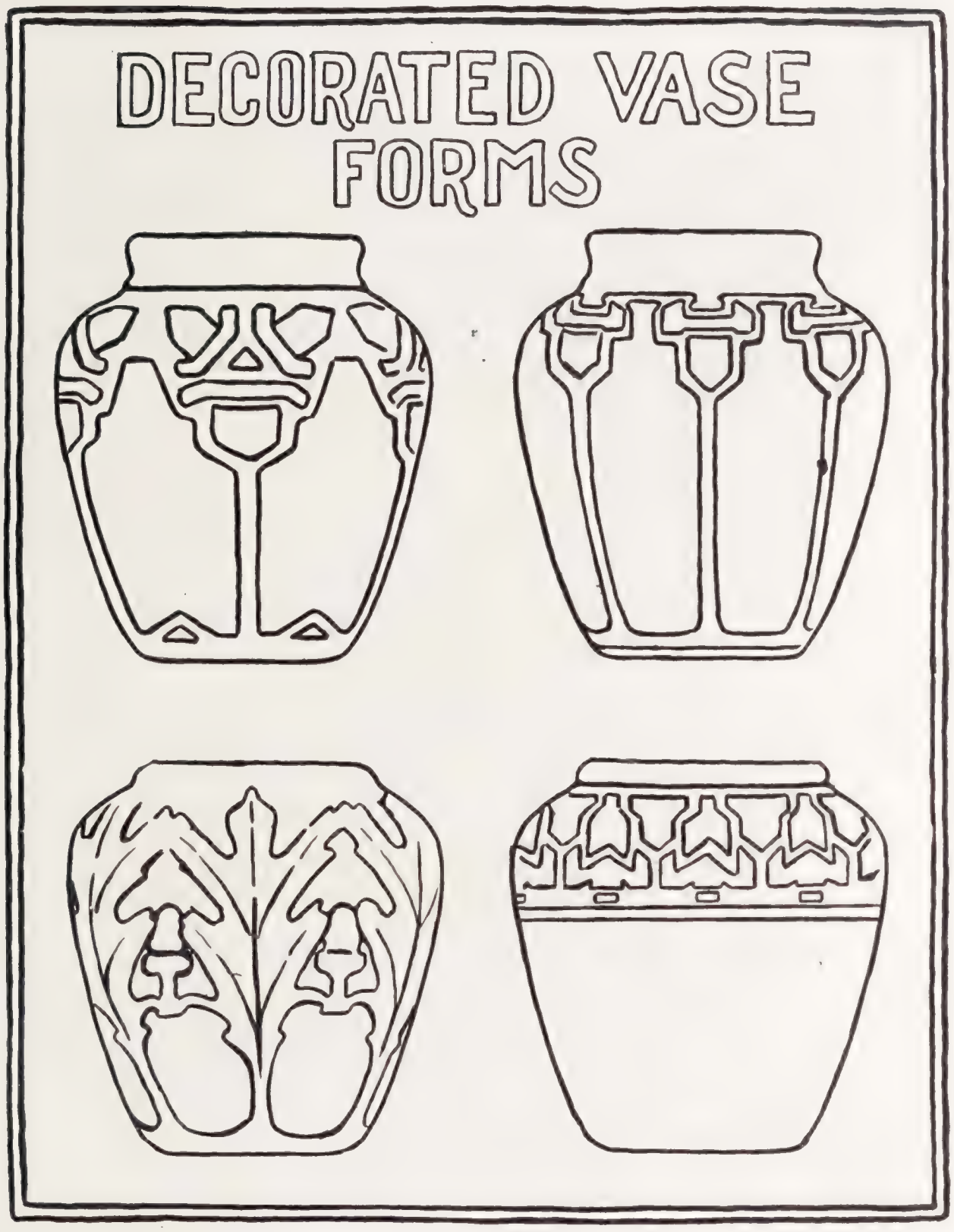


PLATE III.

it to run down over the sides and fill up the space between the walls. If possible, gently jar the whole, by moving the wooden base and the plaster will settle down well around the shape. In this way proceed until the plaster fills the space to a depth of an inch and three-quarters above the bottom of the plaster shape. Now just as soon as the plaster catches enough to hold its shape quickly remove the enclosing wall and with a wet knife divide the cylinder into three equal vertical sections,

FIG. I.

cutting through the soft plaster to the form beneath. (Plate II. Fig. VI). If this is done the moment the plaster can hold its shape, it affords an easy and satisfactory method of dividing the mould into three parts. By using an ordinary saw, a mould of this sort can be divided into two or four parts by sawing through part way and then using a chisel as a wedge and with a hammer, cracking the divisions apart by gently striking the chisel. However, the former method is more satisfactory. After making the divisions, allow the mould to dry, then with a chisel, carefully crack the sections apart and remove the shape from the inside. The seam in the mould caused by the crack gives a close fitting joint which is desirable as it leaves a less noticable seam mark on the pottery form.

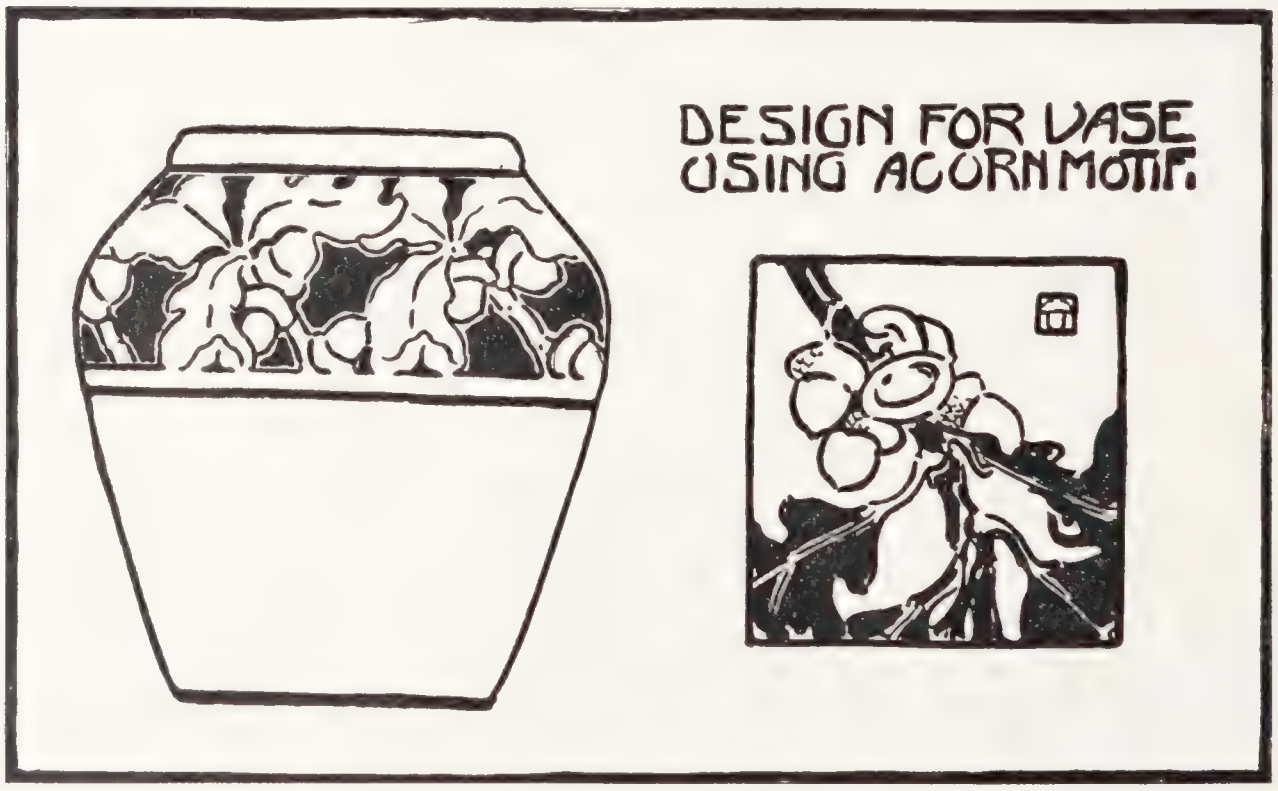


FIG. II.

When the mould is dry, fit the parts together numbering them in the right order for future convenience. Use a stout cord at the top and bottom to hold the sections and, to make them more secure and unmovable, insert wooden wedges under the cords, making them taut.

FIG. III.

Now pour the slip as before into the mould as gently as possible filling it to the top. It is well to insert the finger into the opening and run it around on the inside of the shoulder to expel air bubbles which might lodge against it. Every precaution should be taken to prevent them from getting into the pieces and for this reason the slip should be used as gently as possible and never stirred violently or unduly agitated.

The mould is now poured as before and the pieces removed from the cast on the following day. (Plate II. Fig. VIII). The seam marks are removed and some design applied to the form. Casting is a purely mechanical process and offers little opportunity for individual treatment unless each piece is given a special interest by the application of border or panel effects incised or modeled in low relief upon the vase.

To illustrate one method for developing an endless variety of simple and effective designs for pottery, the oak leaf and acorn is used here in a number of arrangements.

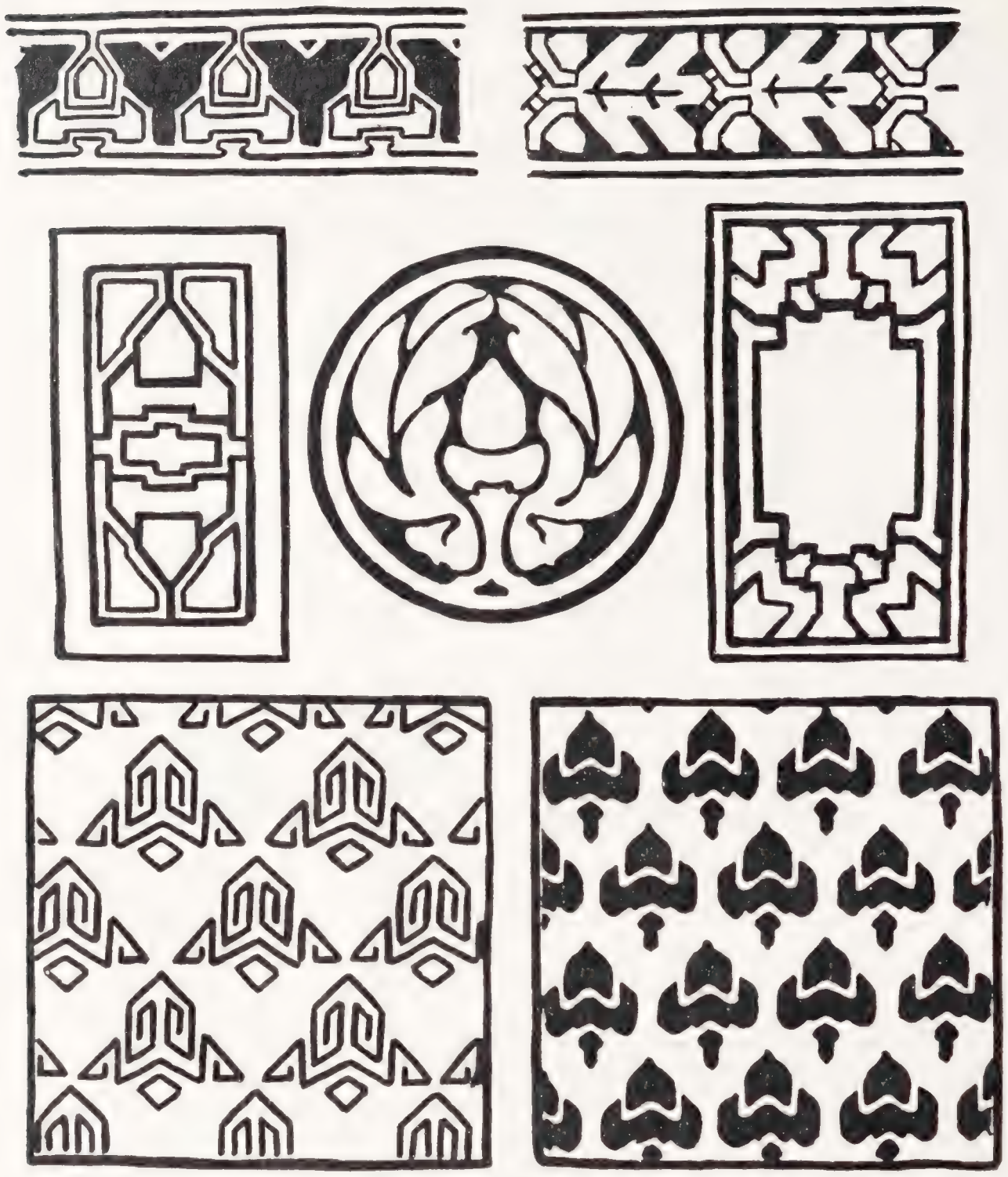


FIG. IV.

Fig. 1 shows the natural appearance of the oak. Fig. 2 shows a semi-realistic arrangement of the leaves and nuts used as a repeating border upon a vase. This when amplified and treated in a broad decorative way gives a scheme for many borders of varying widths and arrangements.

Fig. 3 shows a more abstract method. Here we have the acorn alone used, first showing the natural appearance, then reducing it to straight lines and breaking the figure up into parts well related. Although the figures differ in the arrangement of lines and spaces, yet the general form of the acorn is observed until in the last figure, we have the characteris-

tic shape given by an orderly arrangement of straight lines only. Now, by working in this abstract way and combining the figures into borders and panels, a variety of arrangements can be obtained that are suitable for pottery.

In Fig. 4. this acorn unit is fitted into different spaces and developed into panels, borders, and surface patterns.

Plate III shows a group of moulded pieces similar in shape and decorated with the oak motif only. The cast pieces are given more individuality by the simple treatment with incised lines and with decoration in very low relief. After casting the shapes, they may be kept moist for an indefinite period while the modeling is in progress, by keeping them in a tight box or chest and covering them with damp clothes. When decorated and finished, allow the pieces to dry and if necessary sand paper the surface to remove the scratches and rough edges.

EDITORIAL.

Dr. Haney's Withdrawal

Every reader of the MANUAL TRAINING MAGAZINE will regret to learn that Dr. James P. Haney has decided to withdraw from our editorial staff. There are too many demands upon his time and energy. Even with his remarkable capacity for work, things worth doing come to him faster than he can do them. During the coming year, in addition to his work as supervisor of the manual arts in New York City, he plans to do several important pieces of professional writing and give a course of lectures at the New York University. This change does not mean that Dr. Haney has lost his interest in the Magazine and what it is trying to accomplish, nor that he will cease to contribute to its columns, but it does mean that he will not continue in the editorial work.

During the three years Dr. Haney has been connected with the Magazine he has always been an active force. Many improvements have been due to his suggestions. For example, the use of aphorisms between editorial paragraphs was suggested by him, and he has written every aphorism we have ever used in this way. He has given of his time freely not only to the writing of editorials, but to the less inspiring task of reporting conventions, reviewing books, soliciting articles and revising manuscripts. This has been burden-lifting to the Editor when it has been much needed, but from the standpoint of the reader, his greatest work has been in contributing two series of articles — the first series of four on "Applied Design," and the second of two on "Classroom Practice in Design," completed in this number. These two series taken together, with their richness of illustration, are without doubt the most scholarly and helpful treatment that has been given this subject. Our appreciation of what Dr. Haney has done for the Magazine deepens our regret that now we must lose him from the editorial staff.

Natural relations between the Arts and other branches are vitalizing—forced relations are valueless.

The test of a course in the Arts is its adaptability. A good course has a high coefficient of elasticity.

Change or Progress?

One cannot view the exhibits of our associations from year to year without noticing the rapid changes that are taking place in the character of the work exhibited, and if he is a seeker after truth he cannot refrain from asking himself at times whether in our enthusiasm for the new and popular we do not sometimes mistake change for progress. As one mentally brings the exhibits of a series of years into panoramic review, they remind him of the game of "follow the leader," which he used to play in his youth. A leader in the profession makes a fine display of baskets, and the following year we are surprised at the number of teachers who exhibit baskets. Then the leader omits baskets and exhibits pottery, and, presto, on the following year everybody exhibits pottery, or wants to. And so it has been in less degree with art metal work and tooled leather and block printing. This passion for the new or, perhaps, just as often, a feverish desire to be up-to-date, has reached the point where one need not be much of a prophet to foretell what will be the feature of the next year's exhibit.

All this is very interesting; it gives spice to our work, and spice is good if properly distributed, though one doesn't care to have the whole pepper-box emptied into a single bowl of soup. Moreover, all these crafts are worthy; each has its own peculiar value; we commend them all; and especially we rejoice in the spirit of investigation that searches out new problems with which to enrich our too meagre course in the manual arts. But are such manifestations as we have referred to a proof of progress? Is it not possible that change has sometimes been mistaken for progress? In an experimental laboratory we have seen car wheels go round without any forward movement of the car. If, perchance, one seated on the car were so nearsighted that he could not see beyond the wheels, how easily he might conclude he was going forward when he was not!

And this danger is not confined to the new crafts like basketry and pottery; we see it in the older lines of work. There is too little serious study of values as a basis for the course of instruction. One can find courses of study in drawing for city systems of schools which do not include any instruction in instrumental drawing, where a few years ago good work was done in this subject. Has the demand for instrumental drawing in the industries lessened or is it any less valuable as a means of general education? Or one could find courses in woodworking from which both the fundamental principles of sound construction and of educational manual training have been eliminated in an enthusiastic but mistaken effort to produce things artistic. Is not good construction still

the foundation of artistic production? And is the formation of correct habits any less important now than in the days of the faculty psychology?

There is an intoxication which comes with rapid change; the sensation is pleasant. We have come to like speed for its own sake in these automobile days. Then, too, it seems to be so American, and we are Americans. And thus it comes about that occasionally we need to be reminded to look for the fundamentals in our work — for the foundation elements that last from generation to generation. These should not be sacrificed when the new is taken up. Thoughtlessly dropping the old to take up the new may be as dangerous as never changing at all. All progress involves change, but not all change is progress.

Cleanliness is a hall-mark of the good shop teacher.

Those anxious to know what an enlightened school-policy can do in the way of developing continuation schools, should secure the little booklet written by Professor Hanus and printed by the pupils of the School of Printing of the North End Union, Boston. A baker's dozen of two-cent stamps will procure it, and the reader may then at his leisure ponder the wisdom of George Kerschensteiner, Superintendent of schools in Munich, who has developed in his city a system of industrial schools which is attracting the attention of business men and school officials the world over.

DESIGNED AND MADE BY STUDENTS AT PRATT INSTITUTE.

ASSOCIATIONS

THE EASTERN ASSOCIATIONS.

A joint convention of the Eastern Art Teachers' Association and the Eastern Manual Training Association was held in New York and Brooklyn on May 31st, June 1st and June 2nd. The opening session took place at Teachers College on Thursday afternoon, when Dr. Jas. E. Russell, Dean of the College, extended a cordial welcome to the Associations. The first paper was read by William Noyes, President of the Manual Training Association, the subject being

WORK AS A FACTOR IN EDUCATION.

Briefly reviewing the history of industry and education in this country during the past century, Mr. Noyes showed that the children of the present day do not get that training in productive labor on the farm, in the shop and in the household which their fathers got. The result is a one-sided training. "That literacy," said he, "be acquired first and motor activity trained afterwards is such an anti-psychological arrangement that we should never have thought of it if our educational system were not the result of a tradition, if that which is supplementary had not usurped the primacy." The manual training movement is a step in the right direction, but is inadequate, the time given to it in most schools being but about one per cent of the child's waking hours, and the work not being a spontaneous contribution to the common work of the household or the community. Manual training moreover keeps the child in the handicraft stage, leaving him ignorant of the great industrial system of today. The problem of the school is to re-unite labor and learning. "To enable the child to see straight and to reason well, to play hard, to appreciate beauty and to make good things—these will be the essentials of education."

CULTURE AND INDUSTRY IN EDUCATION

Was the subject of a paper by Dr. John Dewey, of Columbia University. "Business," he said, "is the dominating force in modern life," * * * "the ideals and methods that control business take possession of the spirit and machinery of our educational system." We are still somewhat under the influence of the ancient Greek idea that education and industry must be separate, if not antagonistic. This tends to the separation of classes. After noting various changes in modern thought and practice which tended to bridge the gap between culture and industry, the speaker concluded by pointing out a remedy for the lack of harmony still remaining. "We are fighting child labor in the factory," he said, "while we are urging child industry in the school. In truth this situation would present an insoluble contradiction were it not for the intervention of art. Art is always the mean term, the connecting link, of play and work, of leisure and industry." * * * "Let us cease asking ourselves what the school can do for industry, and let us begin asking ourselves what industry, conceived in the spirit of art, may not do for the school."

The Thursday evening session was opened at the Horace Mann School Auditorium with an address of welcome by President Butler, of Columbia University, after which an illustrated lecture on "The Basis of Art in Industries" was given by Ernest F. Fenollosa.

By means of a double lantern, contrasted pictures were shown throughout the lecture, which consisted chiefly of a study of the evolution of art from the rude drawings or carvings of uncivilized tribes to the finest works of modern times. The intermediate steps between these extremes were shown to be not the gradual refinement of detail, but the development of the artistic instinct by the decoration of various objects of use. The introduction of spacing in decoration marked the beginning of the fine arts, and the artist of today is building upon the foundation thus laid—the decoration of industries. Through the loss of the industrial root we get back to barbaric art. The lecture was profusely illustrated with examples of good and bad art, showing the development of spacing, rhythm, color values, etc. Mr. Fenollosa believes that children have the power of making designs in a wonderful degree, and this power should be developed by the schools.

Friday morning found a large number of both Associations in attendance at Pratt Institute, Brooklyn, where Walter S. Perry, President of the Art Teachers' Association, spoke on

THE RELATION OF ART TO AMERICAN LIFE.

An outline of the history of art in the public schools revealed many changes and much hindrance through incompetence on the part of teachers and supervisors. Teachers today have a clearer perception of what they have to teach and of its relation to life. Mr. Perry had no sympathy with those who cry down everything in art which is not new. "Beauty does not consist in making a thing look like nothing else which has stood the test of time." The work of the school should be honest and thorough. "It is in the coming demand that things shall be better done, that fewer things in design and art work shall be attempted in the public schools, that a background of surer knowledge shall be demanded of supervisors, that a better relationship of one thing to another in public and art schools, in the home, in the domestic arts, in the applied arts, shall prevail, that there is great hope for the future." * * * "In time we shall have a national art born, not only of necessity, but of love and devotion for home agencies, home institutions and national greatness."

John Cotton Dana, discussing the same subject, dwelt upon the importance of cultivating the esthetic sense by teaching children to like or dislike what they see. He said, "American life is essentially laborious, productive, money-getting; the people consequently think a little, work much, and, like all hard workers among crops either of gold or of potatoes, are not quick or nice in their emotions. They wish their colors strong, their stories crude, and their humor broad. They think the picture good if it cost much; the statue if it makes much talk. They are keen on esthetics when convention says to them that they should be; but then only. Why, some of your members trip daily past the disheveled ash box and the fragrant can of garbage on the sidewalk of their cities and move swiftly on to school to teach the children how to spot and how to spatter by the laws of balance, harmony and rhythm. Like the rest of us, they are esthetic only at the appointed time and place." With regard to the formal art work and manual training in the schools, Mr. Dana did not believe in giving it to all children alike. He would "teach a *few* (perhaps one in forty) to draw *well*, a few to use color well, a few to model well, a few to design well, a few to use tools well"; and would teach all to read pictures with skill, to observe with care and to question their likes and dislikes.

John W. Alexander regarded the relation between art and American life as far from satisfactory. In Europe—especially in France—art "is a possession and vital part of the life of even the poorest and humblest citizens." Government recognition tends towards familiarizing art and artists to the people. Museums are open to the public; schools are provided for students, who are also assisted in studies in the museums and encouraged by prizes and scholarships; while "here the rising tide of American art has been hindered and not helped by the government. Nearly everything that has been accomplished has been done by individuals. It has taken the united influence of our best men to coerce a few of our civic governments into exercising a limited amount of intelligent supervision in the adornment of our cities." "The needless, stupid and prohibitive tariff now imposed on all imported art objects" was quoted as another example of the repression of art by the national government.

Four sectional meetings of the combined Associations were held on Saturday morning at Teachers' College, the general topics under discussion being respectively "The Manual Arts in the Elementary School," "Art in the High School," "Shopwork in the High School," and "Girls' Work in the Manual Arts."

J. Frederick Hopkins. Supervisor of Drawing, Boston, told

WHAT THE GRADE TEACHER CAN REASONABLY EXPECT FROM THE SUPERVISOR IN THE TEACHING OF DESIGN IN GRAMMAR GRADES,

Summarizing the various points as follows:

That the philosophy of the supervisor is sound.

That exercises be arranged in progressive steps.

That provision be made for appreciation of form in common things.

That a clear and definite theory of design be offered.

That theoretical design lead to applied design.

That a clear and practical color theory be presented.

That right relations be established between courses of design and problems of manual training.

That additional practice in size, shape and color in proper balance and relation be offered in landscape and house composition,

That lessons be clearly arranged and concisely stated.

Mr. Hopkins said many good things about art teaching, illustrating his remarks by a comprehensive exhibit of children's work.

Cheshire L. Boone thought the exhibit showed that too many kinds of work were attempted. To confine the teaching of design to one line of work and do it well is better than to dissipate effort on several lines. Care should be taken that children are taught the kind of design appropriate to the material in which they are working.

THE PLACE OF TYPICAL INDUSTRIES IN THE ELEMENTARY SCHOOL

Was the subject of a paper read by Leonard W. Wahlstrom, Ethical Culture School, New York City, who held that our manual training is still too much concerned with courses based on technique. "Just as reading came to see that the learning of the letters was not of primary importance in learning to read, so manual training should recognize that skill or technique should not become an end in itself." Much of Mr.

Wahlstrom's discourse was given to a description of some of the admirable work done at the Ethical Culture School, where the aim is to develop "industrial intelligence" rather than merely to train the hand. Group work was recommended as a means of developing a spirit of co-operation and social service, and familiarizing the pupil with the methods that prevail in modern industrial life.

Egbert E. MacNary, Horace Mann School, said it was not difficult to convince teachers of the value of industrial problems in the school, but comparatively few were able to see that average shop classes are not too large for such work, that the average epuipment with a few easily obtained additions is sufficient, and that public school children for this purpose are superior to private school children. Some form of hand work should precede the industrial project, and the latter should be adapted to the grade of the pupil. Visits to shops and factories were recommended as being very helpful towards an intelligent understanding of the work.

William A. Baldwin, Principal of the State Normal School, Hyannis, Mass., spoke of

THE NEIGHBORHOOD VERSUS THE EVOLUTIONARY APPROACH TO WORK IN THE PRIMARY GRADES.

Quoting three types of primary manual training, he said, "I am expected to fiercely attack the third type (where the approach to an understanding of present civilization is made through a study of the past). This I must confess I am quite willing to do, as it seems to me that, as it is usually administered, it is artificial, unnatural and misleading." And this Mr. Baldwin proceeded to do in his usual trenchant style, afterwards taking up the positive side of the question with an exposition of the neighborhood plan. The whole argument was thus summarized: "Manual training which is approached from the culture epoch or evolutionary standpoint is unpedigogical because it attempts that which is psychologically impossible. It is not in accordance with the child's way of approach. It does not minister to the child's most common and imperative needs. The testimony of many of our best modern authorities on education favors the so-called neighborhood approach. This is the method of approach for young children in the home, and, in fact, in all places outside the artificial environment of the schools. It always has been and always must be the method of approach so long as child nature follows in the present lines of development. In fact, this neighborhood method is the one which corresponds with the laws of evolution."

Frank A. Manny, Supt. of the Ethical Culture School, discussing Mr. Baldwin's paper, remarked that he had visited Hyannis, and had found there Washington and Lincoln, and many others in whom we are interested, even including the Greeks and Romans. "Evidently Hyannis believes with us that these activities beginning in the now and here need reinforcement by means of material from the past and distant. The issue comes in this, how far and how much shall the past and the distant have a part?" "I have never known a group of boys who, with any kind of a chance, did not, without adult suggestion, undertake to play Indian, build snow huts, live in caves and trees. * * * I believe that a mistake is made when we do not take account of the seriousness of children's plays." "The problem of the teacher is to begin with interest — with the activities that now have meaning to the pupil — and gradually to increase their range so that during the years of life hard and disagreeable tasks may reveal their significance."

In the section devoted to Art in the High School, Miss Isabel Sewall read a paper on "The Cultivation of Esthetic Appreciation in the High School," taking the ground that such cultivation was possible. To this end a course on Esthetics should be established, to include the study of home decoration, the art of printing, dress design, civic esthetics and the history of art.

Miss Stella Skinner told of the renovation of an old district school at New Paltz by the art students after the burning of the Normal School buildings. The spontaneous desire of these students to improve their surroundings by making them cleaner and esthetically better demonstrated the value of their training.

PRACTICAL METHODS OF TEACHING DESIGN IN THE HIGH SCHOOL.

Miss Mabel E. Stock, Springfield, Mass., said, "In design as it relates to space art there are three important considerations: first, the thought to be expressed; second, the principles governing its expression; and third, the technical skill which is necessary in order that the expression be adequate." In the thought phase of the subject were included individuality, symbolism, selection of the best, etc. The statement of definite principles in design and careful training in technique were advocated. "Ability in drawing and in the use of materials is important, however we may theorize about its being secondary, for without it there is a distinct loss in the expressed thought, however beautiful in the abstract that thought may have been."

Miss M. Medora Adams, Boston, gave the following example of a clear-cut problem in design, illustrated by the completed exercise: "Let shapes with curved outlines have the dominant character of gradual change in fullness and length of curvature. Let sizes form a transition from large to small. Let the movement be horizontal. Let the arrangement be bilateral. Let the shapes suggest a tree, and a plot of land on which are rabbits and plants. Let the whole be enclosed in a circle." Specific directions for color were also given.

COLLEGE ENTRANCE EXAMINATIONS IN ART

was presented by Henry Turner Bailey, editor of the *School Arts Book*. A table of statistics had been compiled, showing that "In nine leading universities offering a total of forty courses in which drawing is specified as a requirement, and fifty-three others in which ability to draw would be of great value, it is not required in entrance examinations in a single case; and that in two leading universities with a total of nine courses in which drawing is specified as a requirement, and six others in which it would be a valuable asset, it is not recognized in the entrance examinations even as an elective." Teachers should urge upon the college authorities the importance of drawing as an elective in the examinations for every course, and as a requirement in biology, engineering, architecture and the fine arts. Mr. Bailey then recommended a list of specific tests of candidates' ability in drawing, and concluded by urging that chief emphasis be placed upon the presentation of work done in the preparatory schools.

A. B. Clark, Associate Professor of Drawing, Stanford University, said "university people are out of touch with recent progress in art education. The preparation of drawing examination requirements is turned over to engineers who represent only a restricted side of the movement, and rather poorly at that." "The high

school drawing teachers must determine what is reasonable in drawing as a *high school ideal;* this must be presented to the colleges and universities as the only reasonable entrance requirement."

At the meeting on Shopwork in the High School, Frank Rollins, principal of the Stuyvesant High School, spoke of

THE MANUAL TRAINING SCHOOL AS A CULTURE SCHOOL.

Quoting from President Butler's definition of culture, "Refined and gentle manners, facility and precision in the use of the mother tongue, the power and habit of reflection, capacity for growth, and the power to do," Mr. Rollins showed that the manual training high school furnishes the materials and activities for the attainment of such ideals. Manual training teaches a boy to "think for the sake of doing and to do because he has thought." The value of any work depends on the spirit in which it is done, and "the advantage of manual training lies in the fact that the spirit the student brings to his task is perfectly obvious." "In its variety of experience and breadth of opportunity the manual training high school seems to be pre-eminently a culture school, and there is little reason to fear that its field of usefulness will ever be diminished by reversion of popular favor to the traditional classical or literary school."

Dr. Thomas M. Balliett, New York University, discussed the question

SHALL THE MANUAL TRAINING SCHOOL BECOME A TECHNICAL SCHOOL?

He gave the answer in the affirmative. There is a great need, he said, of technical schools of high school grade. After giving an outline of the courses such a school should offer, the speaker proceeded to show how it would meet the needs of those who wish to take manual training merely for its educational value, those who are preparing for higher technical schools and the few who can afford to take advantage of it in preparation for a trade requiring a high order of skill. It should also train that large number of men who come between the engineer and the mechanic, and should prepare men who are to represent manufacturing establishments in the markets of the world.

William I. Kaup, Pratt Institute, speaking of the value of trade teaching, said that "through it has been proven the shallowness of the theory that culture can be gained only from books, and furthermore it has demonstrated that true education is a training of the powers of the entire man." "It is teaching high ideals through the medium of little things, and through them giving that training that will enable the student to do the big things of life."

In the meeting relating to Girls' Work in the Manual Arts, Miss Anna C. Hedges, Pratt Institute, read a paper on

THE APPLICATION OF ART TO GIRLS' HANDIWORK IN DOMESTIC ART AND SCIENCE.

After an exhaustive study of domestic art and science in their historical and pedagogical aspects Miss Hedges said, "Art as a school subject touches the household arts at all points. Not a principle vital to one but finds expression in the other, as must be if art is to be really satisfying to human desires." "It is the sense for beauty which household arts may render valuable aid in furthering, by means of a study of the permanent art contributions made by the articles of use and ornament, having their setting in the home." "Facts, such as science aims to give, crisp and telling though they may be and necessary to rightmindedness and practical activity in this world of

relationships, can never be the bearer to humanity of beauty for which it craves. This satisfying message is the province of art expression."

Mrs. Ellen H. Richards, Mass. Institute of Technology, thought it doubtful wisdom to use a basket-weaving pattern, for instance, which to the Indian expressed the nobest aspiration of which he was capable, but which is meaningless to us. "By this attempt to transplant exotic art instead of developing ideas of fundamental beauty are we not impoverishing our race and time?" Mrs. Richards thought the attitude of science had been misunderstood. "The truly scientific man has a vivid imagination, only he imagines what *will be* and not what has been; but he objects to stating as a fact what is only a supposition. He sees beauty in that which fulfills the fundamental definition of beauty—fitness for the purpose of use or decoration." "The crying need today is for collections placed in elementary schools of articles for every-day use which illustrate the eternal principles of form and color."

Miss Katherine Steiger, Supervisor of Domestic Art, Rochester, N. Y., gave an outline of the work done in the schools of that city. Rochester being largely a manufacturing town the school problem includes industrial interests as well as home and social demands. The domestic arts, "standing as they do in such close relation to life, touching the home at every point and many of the industries at one point, afford a rare opportunity for refining the taste and giving to life a full social significance." Miss Steiger's talk was illustrated by an exhibit of work.

Mrs. Mary S. Woolman, Teachers College, discussing the subject of Miss Hedges' paper, spoke of the necessity of more attention to the study of art on the part of teachers. "We shall fail in this most important part of our work if we do not prepare ourselves more in such courses [art] than we have in the past." Speaking of allowing children to copy old designs and use them, Mrs. Woolman said, "No matter how beautiful a design it is it is not as good for our purpose as something which has come from within ourselves and through which we have grown to something better." "We must essay the difficult task not yet done of using the whole study of art to make the little home article a delight, clothing a joy and rest and our very table service a step toward better lives."

An important feature of this convention was the reception held at the Metropolitan Museum of Art. Dr. Edward Robinson, addressing the guests, spoke briefly of the function of an art museum. It has to teach the history of art by showing collections of specimens from all countries and all times. But its greatest object is to reveal to the people something of the ideal side of life, and this is of particular importance in a great city where there is such a large population of poor and ignorant people, immigrants and others. It is the aim of the directors constantly to enlarge the usefulness of the museum to the people in general, and to make it particularly useful to students.

It was much regretted that Sir Caspar P. Clarke, who had hoped to address the members of the Associations, was unavoidably absent.

As noted in the July number of the MANUAL TRAINING MAGAZINE, the movement for consolidation was rejected, a majority of the Eastern Art Teachers' Association being unwilling to accept the proposed constitution. Each Association left the matter in the hands of its executive committee. But though the union of the Associations has been delayed, and wisely so no doubt, the success of the joint meet-

ing was beyond question, and it may be confidently hoped that the same enthusiasm will attend future meetings when the members of both bodies shall have adopted one constitution and elected one executive board.

In addition to the exhibitions held during the convention, mentioned in Current Items of the July issue, was another at Pratt Institute, showing up-to-date work and attracting much attention among visitors. —W. F. VROOM.

EXCERPT FROM MISS LANGLEY'S REPORT OF COMMITTEE ON HANDICRAFTS IN THE PUBLIC SCHOOLS.

(Continued from the July number.)

CARDBOARD.

Sixty schools report cardboard. Fifty-six have courses for both girls and boys. 1 school gives cardboard to girls only, and 3 to boys only. The emphasis is on the first five grades, with 3 schools reporting courses through the eighth. The time varies between 5 and 40 hours, and the cost is from $.04 to $.50. In 14 schools there is a special teacher, in 36 schools the grade teacher does the work, and in 5 schools grade and special teachers work together.

Cardboard, in comparison with its sister handicraft, paper work, does not begin so far down nor have so systematic a development. We find it beginning anywhere. Sometimes in the middle grades for just one year, or sandwiched in in an irregular fill-up sort of way. From the notes which have been written on the circular it is difficult to tell whether cardboard is coming in or dying out. We read "very little," "irregular," "incidental," "in some schools," "in correlation."

CLAY.

Fifty-two schools report work in clay. Of this number 4 schools teach clay from the first through the eighth grade, and devote to it 6 hours a year with an average cost of $.01. Another school gives clay in the third, fourth and fifth grades 80 hours a year; outside of these two exceptions, the time varies from 6 to 24 hours. In every case except one, in which the boys have the honors, clay is given to both girls and boys. Of the two high schools which report, one has clay in the first year for 106 hours, and the second gives clay in the third year for 6 hours. In 32 schools the work is in the hands of the grade teacher, and in 11 schools it is given by a special teacher. In 6 schools both grade and special teachers work together. The clay report is full of the unexpected. However, it seems to indicate at least two things. One, that the work is in demand, that it is needed, and the other that it is undeveloped. The statistics would almost lead one to believe that it is put into the public schools, generally speaking, as part of the program of "busy work."

BENT IRON.

Out of 150 papers, 20 have a mark in the bent iron column. Of these 4 give the work to both boys and girls in the elementary school for one year, the work coming in either the fourth, the fifth or the sixth year. Another school gives it for one year in all three of these grades. One high school gives four years of bent iron work, 57 hours a year with a special teacher. Outside of that one report, we find only 4 high schools that include it. These 4 schools give the following hours per year to bent iron: 60 hours, 80 hours, 160 hours and 760 hours. The work is for boys with a special teacher.

But the blank of the first page is made up by the fullness of the second page in this particular line of work. In many cases "art metal" has been substituted, also "brass." We also frequently read such criticism as "tried and dropped," "not now," "yes, once." One teacher says "bent iron ought never to have been discovered." Does this imply the death knell of bent iron?

WEAVING.

Altogether 32 schools report weaving. Two high schools are included in this number, one offering it as an elective and the other introducing it in the second year. The cost of this work varies from $.02 to $.30. It is generally in the hands of the grade teacher, but in four cases a special teacher is employed. The time in the elementary school varies. The least time given to weaving is 4 hours a year, and the greatest 80 hours, with an average of 24 hours.

Speaking broadly, from the replies, weaving does not seem to be an integral part of the school course. The chart instead of showing a regular line of dots, as for instance, we have in freehand drawing, is spotted like a leopard. When we take into consideration the variation in time, and in cost, we are led to believe that weaving in general, in the public schools, is included under the head of that vague but much used term "busy work," to which, in many public schools, from one-half to one hour each day is devoted. We have no report telling of a developed course in weaving, no record of a course in which even when 80 hours a year is given, a large loom is employed, though I know of one school where through the intiative and persistence of one teacher rags and wool are colored with vegetable dyes by the children, and by the children also are woven on large looms into rugs and other things both useful and beautiful.

COOKING.

Cooking as a branch of school work is as yet not fully developed. It ranks seventh in the list of eleven. No school reports a continuous course through the grades and the high school. Eight high schools report a four-years course, but most of them are elective, industrial courses, or they are for negroes only. Only 5 schools report work in more than two grades, these grades being almost invariably the fifth, sixth or seventh. In the grades the hours vary from 30 to 60, in the high school from 50 to 120, some special courses going far beyond the 120 limit. Cooking is given at an average cost of $1.00, but some schools report as low as $ .15, and some as high as $4.00. All schools but one report a special teacher. Whether in grades or in high school, cooking is given to girls alone except in one school where, the report says, "a few boys are admitted to fill up"—whether on cooking, or in the interest of numbers in the class is not stated.

BASKETRY.

Fifty-two schools say "yes" to basketry. The work in general seems haphazarded and incidental.

The statistics seem to bulge here and there without any particular indication of growth or development. It just "happens." In the elementary school basketry begins with the first grade and continues to the eighth, the greatest stress being on the third, fourth and fifth. The average number of hours in a year is 35.

In 45 schools basketry is given to both girls and boys and in 7 schools it is given to girls alone. In 24 schools the work is in the hands of a grade teacher. Thirteen

schools have a special teacher and 7 have the help of both grade and special teacher. The lowest cost is $.03 and the highest $5.00.

Four high schools give basketry to girls with a special teacher for one year, and one gives it for two succeseive years. In no case is it given in the high school to boys.

CORRELATION

Fifty-seven schools report some attempt at correlation between the subjects of the grades and some of the manual arts, but the reporting is vague and uncertain. One paper says, laconically, "Yes, we correlate." "Incidental," "spasmodic," "as much as possible," "partially," "considerable," "not intimate" are characteristic phrases. Many report "attempted correlation in early grades, but not later." The one subject with which correlation seems to be universal, is drawing. Twenty-one report correlation with English composition, 20 with history, 29 with geography, 28 with nature study. Many papers attempt no report on the subject. One paper reports a jubliant "No" emphatically underlined. One teacher says that "real correlation between grade subjects and manual arts is impossible without twisting either the grade subjects or the manual arts out of their natural orbits."

OTHER METHODS.

It is interesting to read of the other methods, besides correlation, of teaching the handicrafts. Fifty-six schools have the imitative or model system. After the word "model" we note—"not arbitrary," "frequently changed," "modified models," "blank or suggestive models" and one writer apologetically adds "models are a necessary evil." The cases in which models are used include in sewing 6, in cardboard 16, in paper 6, in woodworking 30, in clay 6, in bent iron 3, in basketry 3, in weaving 3, and in freehand drawing 4. Five schools build upon a series of exercises; in thirteen the teacher decides what things shall be made, and how; in seven schools the teacher and child plan together, and in two the pupil suggests. Still another method might be inferred from a superintendent who writes as follows: "The teacher chooses and performs."

SATISFACTION OF SCHOOLS WITH THEIR PRESENT WORK IN HANDICRAFTS.

Of 150 papers, 22 report themselves as satisfied with the variety of handicrafts in their schools and with the time devoted to them. Some of these 22 are legitimately satisfied, for they report full, well-organized, and well-balanced courses. One school, however, reports satisfaction in kinds when it has only wood; one when it has only drawing; and several are satisfied when they have only two or three of the handicrafts. Others have nothing in the grades, some nothing in the high school. Others show very small figures for the time, and have apparently limited and undeveloped courses, yet report themselves as satisfied. They are modern exemplifications of the adage, "Man wants but little here below, nor wants that little long."

DISSATISFACTION OF SCHOOLS WITH THEIR PRESENT WORK IN HANDICRAFTS.

But nearly all schools report a less serene state of mind. Even those with fairly adequate courses state their desire for fuller development along handicraft lines. The reasons given for the present incomplete development make interesting reading. Financial considerations are, of course, dominant. One man writes: "It's all we can do to furnish teachers and schools for the teaching of the three R's," and one despairing superintendent says, "No money for anything." Fifty report definitely a

lack of money for special teachers and equipment. One superintendent explains the lack of money for the immediate introduction of handicrafts by the excessive expense incident to the rapid growth of towns. Many schools report lack of space in the buildings they now have.

OBSTACLES TO THE DEVELOPMENT OF HANDICRAFTS.

The committee thought that an unconvinced community and an unconvinced board of trustees might be serious obstacles in the way of the development of the handicrafts. Some of the superintendents dared report on so sacred a subject. Of these, 30 live in communities not yet converted to a belief in the value of handwork. One wise and wary superintendent reports "We move slow to keep the favor of the town." Evidently, however, the trustees in these towns are more progressive than their neighbors, for only fifteen superintendents report unconvinced trustees. One teacher reports "unprogressive superintendent," and several superintendents report "hostile grade teachers," "uninterested grade teachers," "teachers not educated to appreciate the value of handicrafts."

Apparently on the assumption that the handicrafts, if they are to be introduced, must be in the hands of the grade teachers, many papers report, as a serious obstacle, large numbers of grade teachers, especially in country schools, who have had no training in handicrafts. One superintendent says that "poor teachers are the only reason against the immediate introduction of handicrafts," and adds, "The country teachers cannot teach these subjects. Only about 20 per cent have had any training in these subjects as yet." Another paper attributes the occasional failure of the manual arts when they have been introduced, to ignorance on the part of their advocates and special teachers, and adds that when the specialists understand the philosophy of the development of the crafts, the grade teachers can be properly taught, and not before. Various papers point out that the grade teachers are already overburdened. The frequent objection that the manual arts take too much time, or that there is too much pressure of other work, assumes that they must be added to the curriculum as it now stands. Another paper comments on the general "unwillingness to cut standard subjects." Another writes of the "tyranny of the established order." There is somewhat frequent reference to "lack of organization" as a reason for the difficulty of successfully managing the handicrafts. One paper speaks of "the lack of co-operation of teachers and officers," another says that the time schedules are not properly adjusted, another that the standard subjects are taught by methods unfavorable to co-operation with the manual arts.

REASONS AGAINST THE HANDICRAFTS.

Neither in the schools where the handicrafts are taught, nor in the fifty schools where the handicrafts have not yet been introduced, is one reason expressed against them. Now and then a superintendent voices a hope or fear regarding handicrafts, such as "the community is becoming rapidly educated to the thought of a broader plan of work," and again, "I am not against the introduction of the handicrafts, but I feel that we need other things more. Perhaps, however, the introduction of the handicrafts would bring better trained teachers." Another writes, "they will come later. They are O. K. in the graded schools, but are not practicable in rural, ungraded schools" Another says, "I am in favor of their introduction, with a conservative effort to avoid the fad tendency." And still another, "the handicrafts should

not be introduced unless taught on the same basis as the other subjects and as well taught." Out of the fifty, many plan to introduce the work definitely "in September." Others say, "we are hoping;" "the new building will be ready soon." Some cities are controlled by local school boards, and the work is therefore not uniform. Other schools must depend upon government appropriations. The notes suggest effort. They tell of plans, and they define the position of the superintendent.

REASONS FOR THE HANDICRAFTS.

The reasons for the handicrafts are legion. They are all that are contained between the covers of a psychology, plus the reasons that have grown out of actual experience and observation. They are full, definite, and suggestive. I shall, however, give only a few. One superintendent says: "Since children have hands, why not train them?" Another speaks of the "educational use of natural activity." "The handicrafts," says one, "contain the largest human culture value." "They give the child what industrial progress has taken from him." "They keep pupils in school." "Handicrafts relieve the monotony of school work and develop initiative." "They are a practical preparation for life, they hold the pupils and interest un-academic minds." "They are the best avenues for teaching the ideals of democracy and citizenship." "They correlate school work and life." "The handicrafts give breadth of outlook on human life as does no other course of study or work. The ethical value cannot be estimated, the practical value is beyond computation." "My strongest reason for the handicrafts is that our schools, at present, are tending to produce imitators rather than doers, to emphasize knowledge rather than power, to cultivate memory rather than initiative." "I am quite anxious that the handicrafts be introduced in both the elementary and high school. I consider it a very poor system of public school education that does not give due consideration to the training of the hand." "I believe in them because: (I) The school life should include direction and development of the physical activities of childhood rather than their constant repression. (II) It makes a vital relation between school and home life. (III) Makes for broader mental development." (a) "The nature of the child demands such activities. (b) They have high educational value. (c) They are necessary to fit the child into his social environment and to give him an understanding of it. (d) They furnish a motive for the formal work of the school." "The chief reason for the introduction of the handicrafts into the elementary schools seems to me to be—the development of common-sense. High school the same with the added purpose of developing special aptitudes."

GRADUATES' CLUB, NEW YORK.

A meeting in behalf of technical and industrial education was held in New York, on Friday evening, April 27th, under the auspices of the Graduates' Club, in their rooms at No. 111 Fifth avenue. This meeting was organized by the Club for the purpose of bringing together manufacturers, teachers and others interested in the development of industrial education in this country. The audience was made up of representatives from all the technical and manual schools in the vicinity of New York, and a number of manufacturers from the New England States and from New Jersey and Pennyslvania. Dr. James P. Haney, director of manual training in the New York City schools, presided. Among the speakers were: J. Earnest Yalden, Superintendent of the Baron de Hirsh Trade School of New York City; Milton P. Higgins,

a Worcester manufacturer interested in industrial education, who has done much to further industrial education in Massachusetts. Hon. John C. Monaghan, of the Department of Commerce and Labor, Washington, D. C., who as a government officer investigated the industrial schools of Germany, and Dr. Thomas M. Balliet, for many years superintendent of schools in Springfield, and now Dean of the School of Pedagogy of the New York University. Mr. Magnus Alexander described briefly the method now used in the factories of the General Electric Company at Lynn, to train apprentices in what is practically a four-years trade school course conducted by the Company. Professor Charles R. Richards, Teachers College, and Mr. Arthur Dean, of the Industrial Department of the Y. M. C. A. spoke of industrial training from the schoolman's standpoint.

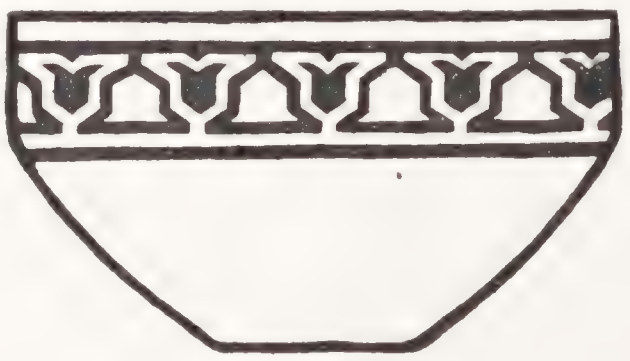
It is impossible to give an adequate report in our limited space but we quote the following significant paragraphs from Mr. Monaghan.

"The world is moving rapidly forward along lines in which the educator is the leader. The East is entering upon the greatest educational era in its history. China has chopped, or is chopping down the deeply rooted tree of its learning. The vast educational system based upon the writings of Confucius, Mencius and others is about to give place to a system based upon all that is best in Western methods. Such success as has been achieved in this country has been due in large degree to the fact that our industrial resources have been practically inexhaustible. The fact that we have built up a phenomenally large amount of material prosperity has led people to look askance at every effort made to inaugurate a system of industrial education. Primary, secondary, college and university education we have had in abundance. The one weak point in the system is its utter inability to correlate the lives of boys and girls to their environment. There is much in industrial and commercial life that has made, is making and is long destined to make for the progress and prosperity of all. To make the most of all the world offers we have to apply that form of education that secures the best results. One evil of our present system is its tendency to unfit boys for life or life's work. The education advocated by the friends of industrial education is calculated to make a boy love his work. Take for example the farmer's son who gets a good training in the chemistry that touches farm, orchard, vineyard, hennery or stable. I hold that such a boy will not only be a better farmer, he will be a better man. In the workshop to-day a little more than mere mechanical skill is demanded. The man in the factory or on the farm who has added knowledge to his skill is in a position to command success. Experience teaches that the wages of such a man are sure to be higher than the wages of the man who has limited his studies to questions of skill. High wages go to skilled labor. The marvelous successes that the German Empire has experienced in recent years is due in a very large degree to its industrial, industrial art, and kindred schools. When told as you have been told, and will be told again that the Germans are theorizers, go to the wonderful schools in the Empire, particularly to the dyeing, tanning, textile, jewelry and other schools and see how very practical they are.

"Let us consider the jewelry school at Pforsheim. The school is built like a Greek temple. It is perfect in its architectural form and in its equipment. It is divided into two parts, the industrial, and the industrial art branches. Into the first go all the boys, and by a process of selection, so characteristic of the Germans, the bright boys, those manifesting talent or the tendency toward artistic expression, sometimes dignified by the name of genius, are lifted out of the industrial into the industrial

art classes. The German method precludes waste, or at least much waste, and it saves boys and girls from the humiliation consequent upon failure. In industrial schools the boys and girls get enough of the practical to preclude lessons. They learn just enough about metallurgy, about solders, their use and abuse, etc. They get a fairly good course in blow-pipe work. When they enter the school or factory they are put at a bench by the side of well-trained mechanics. The successes met by the Black Forest factories or jewelry shops is as interesting as it is instructive and suggestive.

"What the other industrial schools have meant to the Empire is manifested in so many ways and along so many lines that one has to hesitate in choosing concrete examples for illustrations. Take beet-root sugar. At first the yield was three to four per cent.; to-day in Germany on the plains in Magdeburg, thanks to the Empire's schools and experiment stations, there are acres of beet roots where the yield runs as high as twenty-three per cent. and whose general average is fourteen or fifteen per cent. And yet there are those who tell you that all this talk of industrial, and industrial art education is theory—a fad. It is the hardest kind of fact, it is the bed-rock bottom on which the German Empire has built up the wonderful system that has secured results the record of which, all things considered, reads like a romance. It is a system that is sure to commend itself just as soon as its successes have been seen. Industrial, and industrial art schools have demonstrated their *raison d'etre* in other countries; they will add wonderfully to the effectiveness of this republic industrially and commercially, once they are successfully introduced. They will teach boys and girls to love their work. They will go a long way towards solving the great sociological problems. They will stop the tide that is tending towards a disheartened, discontented, disturbing proletariat recruited from the ranks of high school graduates unable to earn a living because they lack the capacity to do anything desirable and because they lack a love of work, and are averse to toil of any kind that results in dirty fingers or dirty clothes. These schools are the great need of the nation, now. As the years pass the need will grow greater. What is needed is a system that will put the industrial, and industrial art schools as near to the people as the common school is now."



CURRENT ITEMS.

CLINTON S. VANDEUSEN.

The Providence Manual Training High School has changed its name to the Providence Technical High School, as more nearly representing the grade of work accomplished. The school was built to accommodate 300 students but outgrew its quarters several years ago, and the city government has appropriated a generous sum which will increase the capacity of the school to a thousand. It is expected that the enlarged building will be ready for class work by March. Art metal work and pottery have been added to the course as first and second year work.

David E. Scull formerly a teacher of manual-training in Cincinnati is now director of manual training at Burlington, Iowa.

The purchase of two hundred benches for the schools of Cincinnati during the past summer, indicates that manual-training work continues to progress in that city.

S. S. Mercereau, formerly teacher of manual training in the East High School of Rochester, N. Y., is now teaching in the Stuyvesant Manual Training High School in New York City. The vacancy in the Rochester school has been filled by the appointment of Judson Decker of Grand Rapids, Mich.

A. W. Friedman has accepted the position of assistant superintendent at Haskell Institute, Lawrence, Kansas. To take this position he leaves the supervisorship of the School of Arts and Trades in Manila.

A. I. Gardner has resigned the principalship of the McKinley Manual Training School, Washington, D. C., and has opened an office in that city as patent attorney.

Albert B. Green, for many years instructor in woodworking in the high school department of Pratt Institute, has accepted a similar position in the historic Central Manual Training School of Philadelphia.

Through the generosity of Mr. James R. Barrett, Henderson, Kentucky, is to have a manual training school. Mr. Barrett presented the Board of Education with a building and lot valued at $25,000 without other restriction than that the city maintain the school.—*The School Journal.*

Manual training is soon to be established in the grade schools of Omaha, Neb. It has already been started in two schools, and the results have been such as to render the members of the board of education enthusiastic over the work.—*School Journal.*

A letter recently received from H. A. Congdon, director of manual training in the School for the Deaf at Delavan, Wis., states that he would be glad to exchange blueprints with other teachers of manual training. He has worked out courses in benchwork in wood, wood-turning, forging and knifework. Owing to the fact that much time is given to manual training in this school, Mr. Congdon's courses are unusually extensive.

Last year Montrose, Colorado, issued bonds to the amount of $10,000 in order to erect a six-room building for manual training work, and public-spirited citizens raised $500 by subscription to assist in furnishing the school. The equipment of this school, selected by the director of the work, J. C. Kesler, is said to be the best in the state. Montrose is justly proud of this new department in the work of her schools.

MANUAL TRAINING SCHOOL, BRANTFORD, ONTARIO.

The above illustration shows the manual training school building at Brantford, Ontario. The basement of the building is used for metalworking, being equipped with forges, anvils, gas engine, etc., while the main floor is equipped for woodworking, including wood-turning. Lumber is stored on the floor above. This school was established five years ago and has had a regular attendance of about 250 boys. Every boy in Brantford finds here an opportunity to receive three years' instruction in manual training under George F. Errett. Many a town on this side of the lakes might well take suggestions from this flourishing school.

Through the remarkable foresight of a wealthy lumberman named Webster, who died twenty years ago, the town of Omro, Wis., has just opened one of the best equipped manual training schools in the state, and one of the best anywhere to be found in a village of 1300 inhabitants. The building is 50x70 feet with a wing addition for boiler and moulding rooms. It is two stories above a high basement where the machine shop and forge room, dry kiln, storage and mill rooms are located. The first floor contains rooms for mechanical drawing, woodworking and recitations. The second story contains freehand drawing room, sewing room, home nursing room, kitchen, pantry, dining room and bed room. The attic will provide room for gymnasium. The school is to be run in connection with the public schools and will provide excellent opportunities for manual-training work for both boys and girls. The equip-

ment is the best that can be provided. The building will cost over $30,000 and will be maintained by the village in connection with the income from the balance of the Webster fund. Rollin Marsden and Ruth Heller, both of the Stout Training Schools, have been elected to take charge of the manual work, while the general management will be in the hands of E. E. Sheldon, principal of the high school.

The spring meeting of the Pacific Manual Teachers' Association was held at Pasadena, April 21. Dr. Millspaugh of the State Normal School at Los Angeles spoke upon "The Present Tendency," referring to the existing conditions and possibilities of manual training instruction. His talk aroused much discussion upon two chief lines; the proposition to adopt a prescribed course of instruction to be accredited at the State University and the desirability of forming a traveling manual training exhibit.

The teachers were practically unanimous in their opposition to the first of these two propositions, asserting that such a prescribed course of study would work hardships to both teacher and pupil and would tend to effectually deaden the entire work in the lower schools. The executive committee of the Association was directed to give the proposition a thorough investigation and report at the fall meeting. The other proposition met with general favor.—*School Journal.*

Horace T. Purfield, instructor in woodworking and pattern-making at the University of Michigan has gone to Fort Wayne, Ind., to take charge of foundry work and pattern-making in the new manual training high school in that city.

CLEVELAND

Cleveland is to have a manual-training high school in addition to the manual-training departments in the six regular high schools. The board of education has issued bonds for $350,000 for the purchase of a site and for the erection and equipment of a building. Lots fronting on Willson avenue, the principal cross-town street, and two side streets, have been purchased at a cost of $45,500. Plans are to be drawn as soon as possible and it is hoped the building will be completed by the middle of the year 1907-08.

A new center for seventh and eighth grade manual training was opened in September at Oakland School. There is a classroom and large supply room for a woodworking department, and a classroom, dining-room and sitting-room for the department of domestic science. The equipment is one of the finest in the country for elementary school work. The building is a modern four-room building remodeled and adapted to the needs of this school.

The drawing department of the city schools has been reorganized. Miss Florence Ellis, formerly of Grand Rapids, is head of this department. The manual-training work for the first four grades is co-ordinated with the drawing and placed under the supervision of that department.

George A. Seaton, instructor in woodwork in the manual-training department at Central High School, has resigned to accept the position of supervisor of manual-training in East Cleveland.

In the course of study recently adopted for high schools, the amount of time given to manual training and mechanical drawing has been increased from six hours each week for four years to ten hours each week in the first two years and eight hours each week in the remaining two years.

ILLINOIS

Frank Forrest Frederick, for about fifteen years the director of the department of Art and Design at the University of Illinois has accepted the directorship of the School of Industrial Art at Trenton, N. J. The loss of Professor Frederick will be felt keenly not only in Illinois where he has a host of warm personal friends, but throughout the Central States. A member of the Society of Western Artists, whose paintings have recently received much attention, a worker in several handicrafts, a lecturer on art and the history of art, an active member of the Western Drawing and Manual Training Association, the president of the Illinois Manual Arts Association, the author of several books and many magazine articles, Professor Frederick occupies a unique place in the manual arts work of the Middle West. To his new work he takes broad scholarship, training under the best European masters, a growing reputation as a painter, and successful experience as an organizer and teacher. We congratulate New Jersey.

Joseph Bayley of Zion City, formerly of Swarthmore College, takes the place in the La Salle Township High School made vacant by the resignation of F. W. Kendall. Through the generousity of a citizen of the county, this school has one of the best manual training equipments for a school of its size in the state.

George W. Eggers, of Pratt Institute, has been appointed director of the department of graphic arts at the Chicago Normal School. This school, under the inspiring leadership of Mrs. Ella F. Young, and with its grand new buildings, is sure to become the active educational center of the Chicago public school system, and the department of graphic arts, which includes drawing and design, is being organized to exert its full share of influence. Miss Harriet C. Magee, widely known as the director of the art work at the Oshkosh Normal School, and Mrs. Antionette Miller, of the Chicago Art Institute, have also been added to the staff of this department.

18 FT. LAUNCH MADE BY BOYS IN THE MANUAL TRAINING SCHOOL, ISHPEMING, MICH.

REVIEWS

Basketry, Clay and Paper-Weaving. By Arthur H. Chamberlain and Ella V. Dobbs, Jane Langley, Harry D. Gaylord. The Whitaker & Ray Co., San Francisco, 1905, 8x5½ in.; pp. 78; illustrated with half tones and numerous diagrams; price 50 cents net.

This is Part I of Educative Handwork manuals, Part II of which, Paper and Cardboard Construction, was published several years ago. The chapter on basketry is evidently an attempt to present in condensed form the essentials of basketry from the public school standpoint. It does not try to cover the whole field, but is content with explaining and illustrating a few of the simpler processes. The chapter on paper-weaving treats the subject as a form of construction work rather than a study of decorative patterns and as such is very satisfactory. The chapter on clay contains good suggestions about modeling fruit, vegetables and leaves. The book is intended to be neither comprehensive nor exhaustive; it takes up a few subjects that the authors have proven of special value and presents them briefly for the benefit of grade teachers who have had little or no special training in handwork.

—B.

Bench Work in Wood. By W. F. M. Goss, Dean of College of Engineering, Purdue University. Ginn & Company, Boston, 1905, 7½x5 in.; pp. 200; illustrated with many diagrams; price 75 cents.

This is a revised and enlarged edition of the book that for the past eighteen years has been one of our best books on woodworking tools and their use. Part VI, a valuable chapter on timber and its preparation for use, has been added in this new edition. While very few teachers, even in the engineering colleges, will care to follow the course outlined in Part II of this book they will continue to follow the principles underlying it, and as for Parts I and III on bench tools and wood construction respectively, they will be as valuable in the future as they have been in the past.

—B.

Mechanical Drawing for Technical Students. By Charles L. Adams. Ellis & Co., 272 Congress Street, Boston, 1905; 8½ × 11 in.; pp. 204, 23 plates, and 160 other illustrations.

This volume by an associate professor of the Massachusetts Institute of Technology, offers, in the language of another, "not a prescribed set of exercises to be taken in the same form by all students, but rather a collection of material sufficient to enable the teacher, by judicious selection, to lay out the work of a course, whether designed solely for educational training, or as an introduction to a particular course in engineering and architecture."

No problems in projection are included, but after an unusually good description of the various drawing instruments and their use, the author devotes successive chapters to methods of work, geometrical construction, arrangement of drawings, object drawing, the general technique of working and wash drawings, and the various mechanical processes of reproduction. The illustrations shown are many, well

drawn and of commendable simplicity. The text is as good, plain in statement and full of suggestions from one familiar with the snares that trap the feet of the tyro technician. He whose business it is to teach mechanical drawing will find this volume a useful addition to his working library. —H.

The Eastern Art Teachers Report of the meetings at Springfield, in 1904, and Trenton in 1905. Edited by James Hall, and to be obtained of Herman Bucher, (Address Columbia University, Teachers College, New York City.) 6½×9 in.; pp. 194, 30 illustrations; price 50 cents, postpaid.

This handsome double report forms what may very possibly be the last official publication of the Eastern Art Teachers Association as a separate organization.

As a document the report is a credit to the organization. It is well arranged and well printed, and has the unusual merit of offering nothing but original professional papers—over a score of them, brief, pithy, practical—from the pens of teachers, all members of the society. Not an introductory "address" is included, not an essay on Art mildly roared by some "lion" captured for the occasion, not a page of double-leaded "open discussion" empty as the inside of a pop-over. Those familiar with some association records will not believe this, but it's true.

Six cents in stamps sent in addition to the price of the present book will secure in addition the 1903 report of the Baltimore Convention. The latter is well worth having. Fifty-six cents could not be spent to better advantage by any teacher of the Arts who does not possess copies of these documents. —H.

The following have been received.

The Art of Wood-Carving. An illustrated booklet of 32 pages issued by the wood-carving and sculpture studios of the Manitowoc Seating Works, Manitowoc, Wis. The first chapter refers to the origin of wood-carving, the second gives biblical references concerning the antiquity of wood sculpture, the third speaks of the magnificience of Solomon's Temple and the use of carving in Christian churches, and the fourth points encouragingly to the "new spirit" in America which is demanding more beautiful and appropriate houses of worship. In order to meet the demand for a higher type of carving, the Manitowoc Seating Works has secured from abroad "a number of the best artists in carving, men who have been reared in an atmosphere of religious fervor, and who have devoted their lives to this beautiful art. At the head of this department has been placed Mr. Alois Lang, of Oberammergau, Bavaria, the town famous for its production of the Passion Play."

Teachers College Record, May, 1906. This number, which is devoted to the "Secondary School Curriculum" has a brief article on "Manual Training in the Horace Mann High School" by Charles R. Richards. With it are seven half-tone illustrations of class work. This number also contains articles on art, domestic art, and domestic economy in the same school. The price of this number is 30 cents. Published by the Columbia University Press, New York City.

Catalogue of The Chicago Academy of Fine Arts. This catalogue is distinguished from all others by the fine example of color printing occupying the upper half of the first cover page. However, this is not the first attractive announcement sent out by this progressive school. The directors of the school are Carl N. Werntz, Emma M. Church and E. M. Ashcroft, Jr.

VOLUME VIII NUMBER 2

MANUAL TRAINING MAGAZINE

JANUARY, 1907

THE DEVELOPMENT OF APPRECIATION.[1]

CHARLES A. BENNETT.

TWO of the direct results of art instruction and manual training are, first, power to do and second, ability to appreciate what is done by others. Both of these results must be embodied in the aim of the teacher who would wisely guide his pupils in work in the manual arts. Emphasis is rightly placed on the first, but the second deserves more thought than it usually receives.

Froebel tells us that "man only understands thoroughly that which he is able to produce." Accepting this statement as fact, we see that it is only through mastery of processes, tools and materials, color, form and values, laws of construction and harmony, that we can completely understand any masterpiece of art or handicraft. And we know from experience that such mastery is exceedingly difficult to acquire.

William M. Hunt in his "Talks on Art"[2] has given emphasis to the same fact when he says, "I flatter myself that I know and feel more than I express on canvas; but I know that it is not so." Here is the point of view of complete mastery of materials and processes. If one becomes a master of brush and pigment, he can express his thought and feeling through painting, and it is only through such power of expression that one comes to know the thought and feeling expressed by other painters —to fully appreciate a great work in painting. But here again we who would appreciate art and handicraft find that it takes a life-time to gain the mastery of even the painter's art, and when we think of sculpture and metalwork, cabinet-making, textiles, jewelry, the building of a cathedral, a great bridge or machine, we realize how impossible it is to fully ap-

[1] This paper was read before a department conference in connection with the dedication of the Chicago Normal School, April 21, 1906.

[2] First Series, page 5.

preciate work in all these arts and crafts. With our human limitations, the span of a single life is not long enough to include so much, yet we desire the power to appreciate the good in the arts and to help others to do the same.

So we are led to try another and easier course. We throw aside the philosophy of Froebel and seek to store our minds with facts about art, in the hope that by this means we may reach our goal of appreciation. We search the latest books and magazines. We read what Mr. A. says of the opinion expressed by Mr. B. concerning the works of Mr C. We find that Mr. D. does not agree with either Mr. A. or Mr. B. on several important points, and we take little satisfaction in knowing their combined opinions. When we are honest with ourselves we admit that we do not appreciate the real thing they are writing about. Like the young clerk in the draperies department of a down-town store, we can talk "arts and crafts style" or we can discuss the report of the latest exhibition, and quote good authorities too, but we are conscious of the fact that this is not appreciation. We know that appreciation involves feeling and this newspaper reading has begotten no art feeling in us. We would not only know about art, but we would feel—we would respond to the influence of the art; we would have the artist's emotions transmitted to us, and this we find does not come about through the medium of words merely. We must see and touch and do; we must get our knowledge first hand; we must learn through experience. In learning *about* the art we have avoided the thing itself. As Dr. Münsterberg points out in his recent book [3], we have taken the scientists attitude instead of the artists "The scientist explains where the artist appreciates."

This brings us to our problem: If we cannot learn to appreciate the arts by reading books and magazines, and if life is not long enough to allow us to secure the mastery of all the arts and crafts we would appreciate, what are we to do? Is there not a median course open to us? For our purposes, can we not combine the scientist's explanation with the artist's appreciation? Would not such a course be in harmony with the aim of the public school? If so, is it possible and what does it involve?

Perhaps we may get a suggestive illustration from music: We would appreciate the oratorio. We read of the origin and early form of the oratorio and its identity with the opera. We read the life of George Frederick Handel, a description of his "Messiah," and learn of the effect it produced when it was first given in the city of Dublin. We read of

[3] The Principles of Art Education, page 28.

its presentation in London shortly after, when the audience was so electrified by the "Hallelujah Chorus" that the King and all present rose involuntary and remained standing till its close. We are interested in this account, but the reading does not enable us to appreciate the oratorio. Next we go to the Auditorium and hear the "Messiah" presented by noted soloists and the great chorus and orchestra. We are more than interested now, though many parts of the composition find no response in us—we have not been educated in music. The grandeur of other parts, however, does affect us, but we do not yet appreciate the oratorio. Then we learn to sing, and join the great chorus. Under the inspiring leadership of a Thomas or Damrosch, we sing the parts over and over; we rehearse with the soloists and orchestra; and on the night of the concert we pour out our souls in music till we are lifted above ourselves and things of earth and are touched by the same emotion that inspired the composer. We may not think we see "all heaven before us and the great God Himself" as did Handel when he wrote the "Hallelujah," but we have in some measure come to appreciate the Messiah and have established a basis for the appreciation of all other oratorios.

Another illustration from music: Two years ago a boy in the fifth grade in the public school, read in his school reader an account of the writing of Mozart's Requiem. He read how the unknown visitor came and gave Mozart the commission, how he disappeared so mysteriously that Mozart believed the stranger had been sent from another world and interpreted the coming as announcing his own approaching end, and so applied himself with increased ardor to the task of writing the Requiem. A few weeks ago the boy learned to play a selection from the Requiem on the piano and recalled what he had read two years before. He hunted up his old reader and re-read the story; then going to the piano he sat down and played the selection again. It was evident that his emotions were affected by the music as they had not been before. The Requiem had a new meaning to him; he had reached a stage of appreciation which was not evident before he re-read the story, and certainly not before he learned to play the selection from the Requiem. He does not yet fully appreciate the Requiem, but he has the foundation for a growing appreciation.

Turning now to the manuul arts we may find similar illustrations. A young man sees a water-color painting and likes it, but he does not appreciate it until he has struggled with muddy washes and hard edges and false values and learned to produce something of that purity and delicacy of color and those atmospheric effects which belong particularly

to paintings in water-color. He may have read much about water-color painting and water-color paintings and water-color painters, but he gets only part value in return for his reading until he has studied the art itself. After that, the reading is of great value.

The same is true of the art of smithing. Not until one has drawn out the hot iron with the hammer and anvil and discovered the difficulties in making a graceful bend or a neat weld can he appreciate medieval wrought-iron work. Until then the hinges on the doors of Kenilworth Church or Notre Dame Cathedral are so many black scrolls and sprays. They might just as well have been made of painted stucco as nobly wrought metal. After he has worked in iron himself, every fact in the history of the craft and every masterpiece has a new interest to him. The fact that so few of us appreciate wrought iron is why we accept substitutes from those who would deceive us.

A short time ago while in an art store a clerk wished me to admire some pieces of copper—"A very fine new line, just in", she said, and then spoke of the pieces in most enthusiastic terms, telling me that they were all beaten up by hand. The moment I saw them I knew they were not hand work. Having hammered copper myself, I knew that the pieces before me were not even good imitations of hand work, and so I pointed out her mistake. She still insisted and carried the case to the proprietor for vindication. Much to her chagrin he admitted the truth. The clerk herself, did not intend to misrepresent facts; she was merely repeating what had been told her. She had no appreciation of the wares she was trying to sell. She could talk glibly about a dozen kinds of handicraft work, but she had no real appreciation of any of them. Every day she was misleading an ignorant public that came to the best art store in town to buy genuine art products.

In this connection it is well to remember that one may be attracted by the form of an object or its use without appreciating it as an art product, or, in painting, one may be interested in the subject of the composition and may value the picture without appreciating the painting as a work of art. I know a man who paints pictures of farm houses and cornfields and sells them. People buy his pictures not because they appreciate painting, but because they are interested in the thing he represents in his pictures. If they appreciated painting they would not buy his pictures. Appreciation of an art then demands a high standard in that art. To raise the level of appreciation in a community is to raise the standard of art products that can be sold in that community.

What we have observed to be true in reference to the arts of painting and metalwork is equally true in reference to any of the mechanical arts. For a generation our engineering colleges have recognized that to read about pattern-making, or moulding or machine construction is not sufficient for the engineer, even though as an engineer he may never have to do the handwork. In order to gain reasonable knowledge of processes and an appreciation of quality in construction, it is essential that the student in training have actual shop experience in all the fundamental crafts he is likely to deal with as an engineer. In this way only can a feeling for good workmanship — an educated sense of fitness — be imparted in the short period of the school preparation of an engineer. But here, too, mere practice in the craft is not sufficient. Along with the practice must come a study of the theory of construction and the economics of its application to industries, also a study of the materials employed, the source of supply, methods of refining, etc. The student gets the theory and the practice — the science and the art together. Each helps the other.

If these illustrations have been pertinent to the problem under discussion we may infer, (1) that some definite knowledge of the technique of an art is fundamental to any real appreciation of that art, (2) that appreciation involves feeling which can be gained only through practice in the art itself, (3) that after such practice, appreciation may be developed by reading about processes, methods, motives, relationships, about the masterpieces and especially by studying the works themselves.

With the foregoing discussion in mind we may now turn our thought for a moment to the public schools. We recall that the aim of the public schools, in reference to the manual arts, is not fundamentally to turn out a few great artists and master craftsmen. It is rather to educate all pupils to a reasonably high degree of industrial efficiency, and along with this to give power of discrimination and appreciation. With our present ideas of training for citizenship in a democracy, we discourage specialization in the elementary school and aim to produce a high general average of manual efficiency. We prefer considerable familiarity with several crafts to expertness in one. Likewise in the matter of appreciation we prefer to have it cover a wide range of handicrafts rather than be narrowed down to one or two.

Accepting this point of view, for the present, at least, it follows from what has been said that in order to develop the kind of appreciation we want, it becomes necessary for the public school to give instruction in a variety of arts and crafts rather than to confine its efforts to one or two.

Without forgetting the dangers of a mere "smattering" of a subject, we recognize the importance of an intimate acquaintance with a variety of materials and processes as the basis for a broad appreciation. A course through the grades consisting merely of paper and cardboard work, still-life drawing, and a course of benchwork in wood is decidedly inferior to a course which includes fundamental processes in (a) the plastic arts — modeling and pottery, (b) the textile arts — weaving, braiding, sewing, and garment making, (c) the bookmaking arts — paper and cardboard work, lettering, bookbinding and leather tooling, (d) the graphic arts — drawing and picture making and (e) the mechanic arts — woodworking and metalworking. Not one of these five subdivisions of the manual arts can be omitted from the course without correspondingly limiting the possibilities for the development of appreciation.

But it is not sufficient that the child do the work merely, even in all these varied arts and industries; he must be led to see beyond the work of his own hands; he must learn something of the relationship of each art to the great out-of-school world into which he will soon be thrown, and to the history of industrial effort. Information concerning the origin and development of any art — the social conditions that called it forth and nourished it — will give the pupil's own work new significance. The masterpieces, too, and the experiences of the men who created them, should be an inspiration to him. Biography, history, economics, science and literature may all contribute elements to his developing appreciation.

The development of appreciation in the manual arts as a factor in public school effort does not mean less handwork and more information, but it does mean more information of a significant character connected with the handwork, from whatever source it may come. It means a new point of view for many teachers of handicraft, and especially it means enrichment of the course of study and rational correlation.

NORMAL SCHOOL FOR TEACHERS OF MANUAL TRAINIMG, LEIPZIG.

MANUAL TRAINING FOR BOYS IN FOREIGN COUNTRIES.

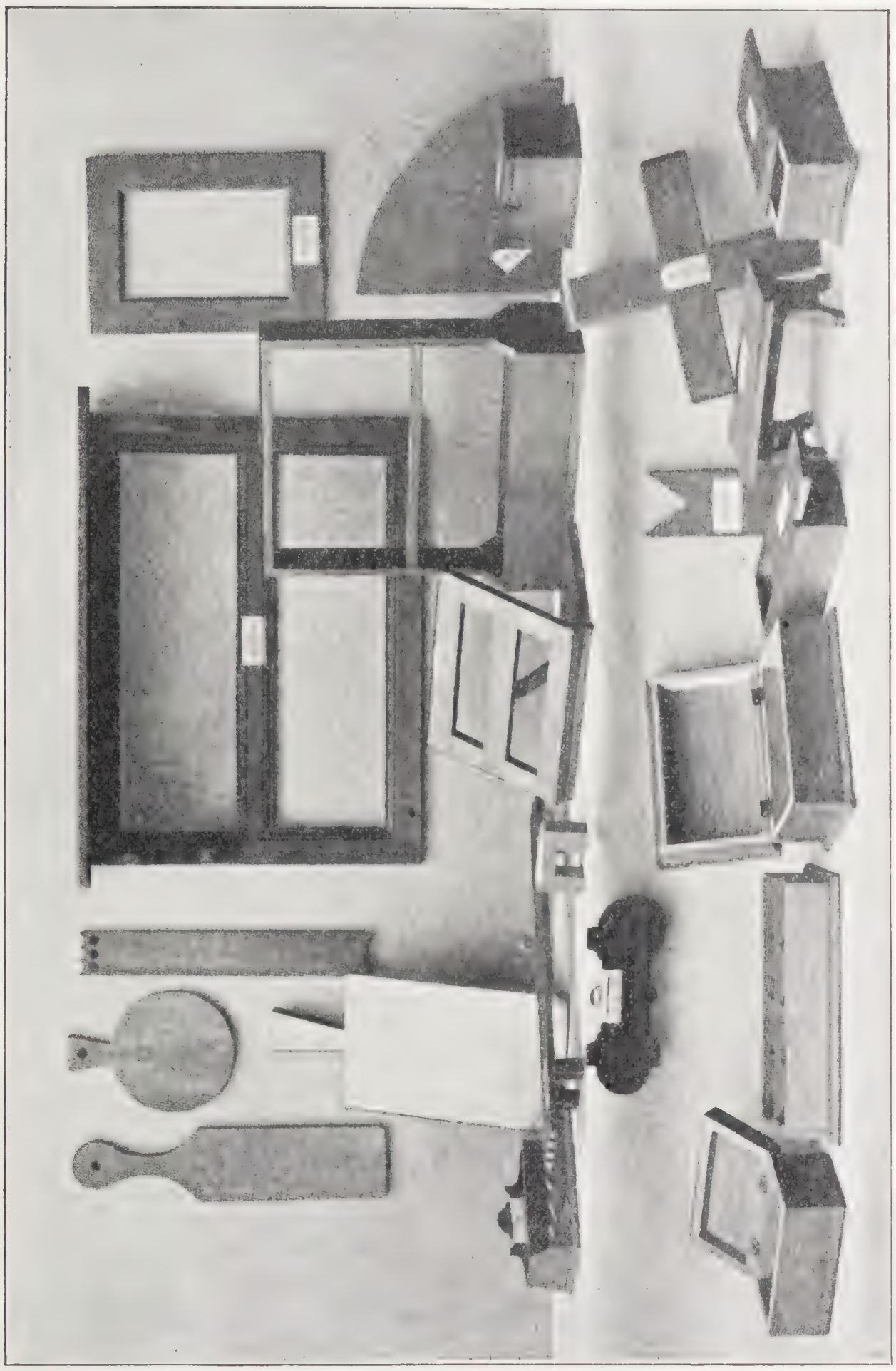
Translated from the Festschrift des Deutschen Vereines für Knaben-Handarbeit,

By GEO. F. FOTH,
Supervisor of Manual Training and Drawing, Cheltenham Township, Penna.

IF we acknowledge the fact that the national characteristics of a people are reflected in their educational system, then it will also become evident that manual training has not been appreciated to the same degree by the various civilized nations. It occupies a peculiarly important position in the educational systems of Northern countries (Finland, Sweden, Norway and Denmark) and likewise in France, England and North America. To the importance which is assigned to it in these countries, corresponds its considerable cost in money, and upon this again depends the methodical accomplishment and the practical character of the instruction, which enjoys high esteem, and to which are devoted the best efforts. Therefore, for us in Germany, it is very instructive to follow up the development of manual training in these countries.

The Northern countries that have out-stripped all others in their recognition of manual training as a proper subject of instruction in schools, (and it was first, and indeed as early as 1866, introduced in the public schools of Finland) also possess a remarkably fine system of instruction in this branch. It is known in general as sloyd, by which term is understood generally skill of the hand, in contrast to mechanical skill or skill according to the rules of a trade. Accordingly the scope of sloyd may embrace manual work in various materials (wood, metal, paper, etc.), yet the purpose, the aim of sloyd is never industrial training, but always only the development of the powers of the child. The objects, the making of which forms the purpose of the instruction, are not in themselves the aim of the instruction, but only a means to the end. Sloyd has therefore an entirely educative character, even though it originally had its rise in an economic movement for the reanimation of the national domestic industrial life. In the course of study of the Swedish and Danish schools it is in general not obligatory, while the Norwegian Unitarian school has made the manual work obligatory by the school law of 1896. But also in Sweden and Denmark sloyd is very highly valued and accordingly carried on almost universally; in Sweden, for example, in which about 3200 schools were supported by the state as early as 1898 to the extent of more than 236,000 Kr; in this connection, it should be remembered that the sum expended for instruction in sloyd was noticeably increased by additional allowances.

A slight contrast to the concrete system of Swedish sloyd is shown by the manual training which is practiced in the French schools. By the school law of 1882 this instruction was made obligatory in the public schools, and, indeed, it must be taught in all the grades of the public schools. This manual work follows the work of the kindergarten which in its essentials resembles our German Froebel works. In the primary grades of the public school this Froebel work is supplemented with clay modeling, while in the intermediate grades more difficult exercises in folding and weaving take its place. These last named exercises serve mainly for the purpose of an introduction to geometric ideas. This, on the whole, is characteristic of the study of the French manual training. It is connected with geometry and drawing that it may be closely related to the mental development of the child. The instruction in the primary and intermediate grades is given in the classrooms by the regular teachers. The pupils of the grammar grades, on the other hand, receive instruction in special workshops which are connected with the schools. To direct the technical work in these workshops, in addition



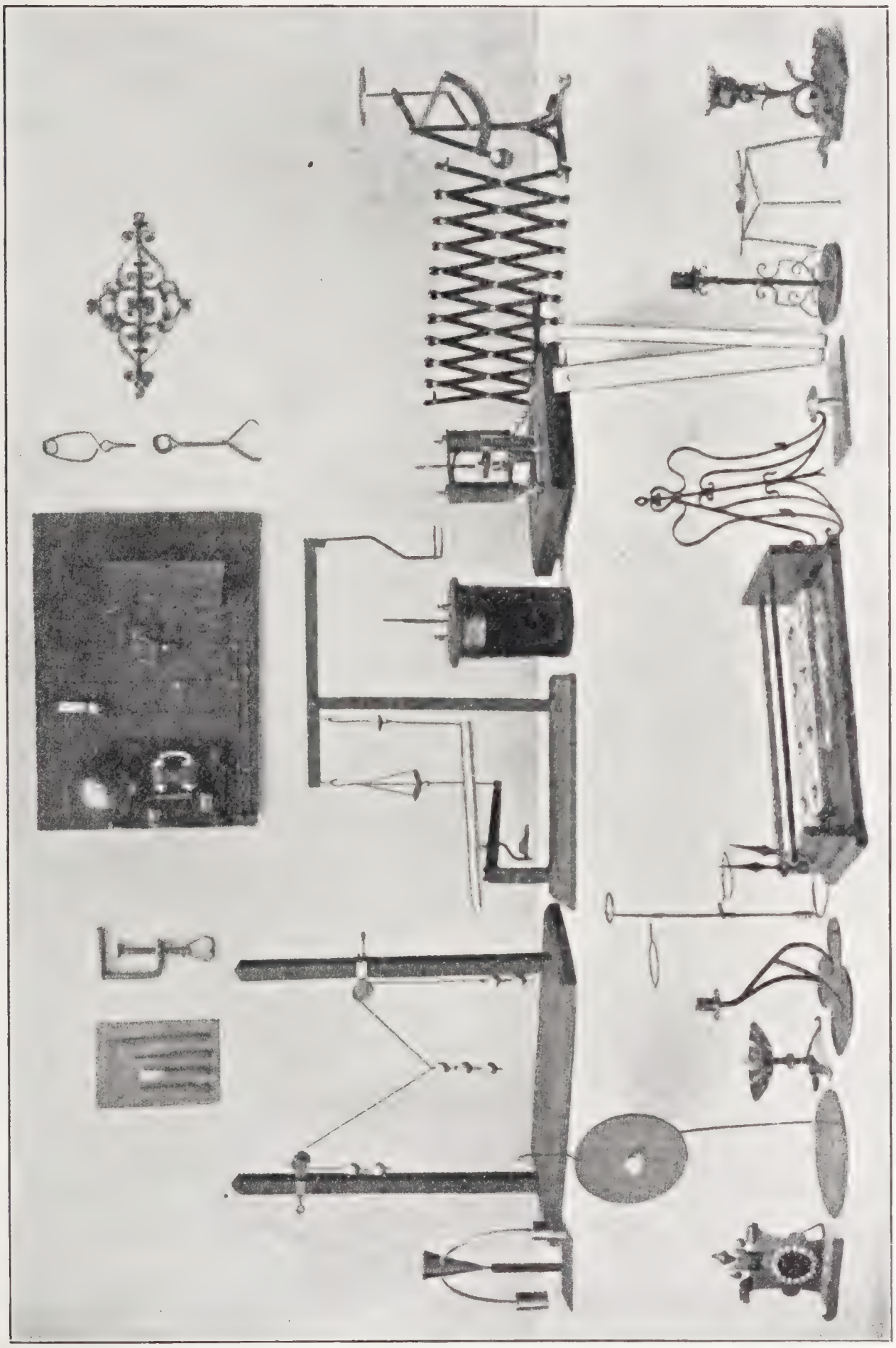
STUDENTS' WORK IN WOOD-JOINERY, LEIPZIG.

to the teachers, there are employed master artisans, who have received a pedagogical training and are engaged in school work. In the instruction everything is to be avoided which in any way can suggest mechanical pursuits. Special emphasis is laid upon the connection of technical work with drawing and with theoretical instruction, and in reality no design is worked out that is not based upon a carefully drawn sketch. For the training of teachers of manual training, the city of Paris has equipped a special *seminar;* their general training is carefully looked after in the national *lehrer-seminaren.* In 1900 there were 133 public schools in Paris equipped with shops for woodwork, and 43 for metalwork. For the manual training as a whole, the sum of 346,300 Fr. was expended.

In England and Scotland manual training has developed rapidly, especially in the industrial cities, and in a very special way since in 1890 when it was added to those branches of study in the public schools which receive state appropriation. It forms in the public schools the continuation of the Froebel work which is carried on in the kindergartens, and comprises work in paper, cardboard, clay-modeling and brush drawing, whereas in the grammar grades work in wood and metal is added. The work of the primary and intermediate grades is taught in the regular class rooms, while for the grammar grades special workshops have been supplied which are generally used in common by a number of schools. The general methods of this manual work are regulated by the school board; for their execution the responsibility on the part of the Inspection Board is assumed by a staff of special supervisors. For the training of teachers, special courses are arranged; many English teachers have also been trained in the *seminaren* at Nääs and Leipzig. The state aid and also the support on the part of the communities, bear testimony to the esteem in which manual training is held by the Boards and also by the parents.

A surprisingly favorable development of manual training is also shown by some cities in Switzerland, especially Basel, Zurich, Geneva, Lausanne and others. In a number of cantons the instruction is introduced as obligatory and in others as an optional branch, both in the teachers' training schools and in the public schools. The sums expended for the purpose are in a measure quite considerable.

In the other European countries the position of manual training has not yet become definitely established. In many places it has been taken up with great enthusiasm, especially in Roumania, Hungary, and other states; in others a more or less neutral position has been taken and local obstacles have not yet been surmounted.



METALWORK BY ADVANCED STUDENTS, LEIPZIG.

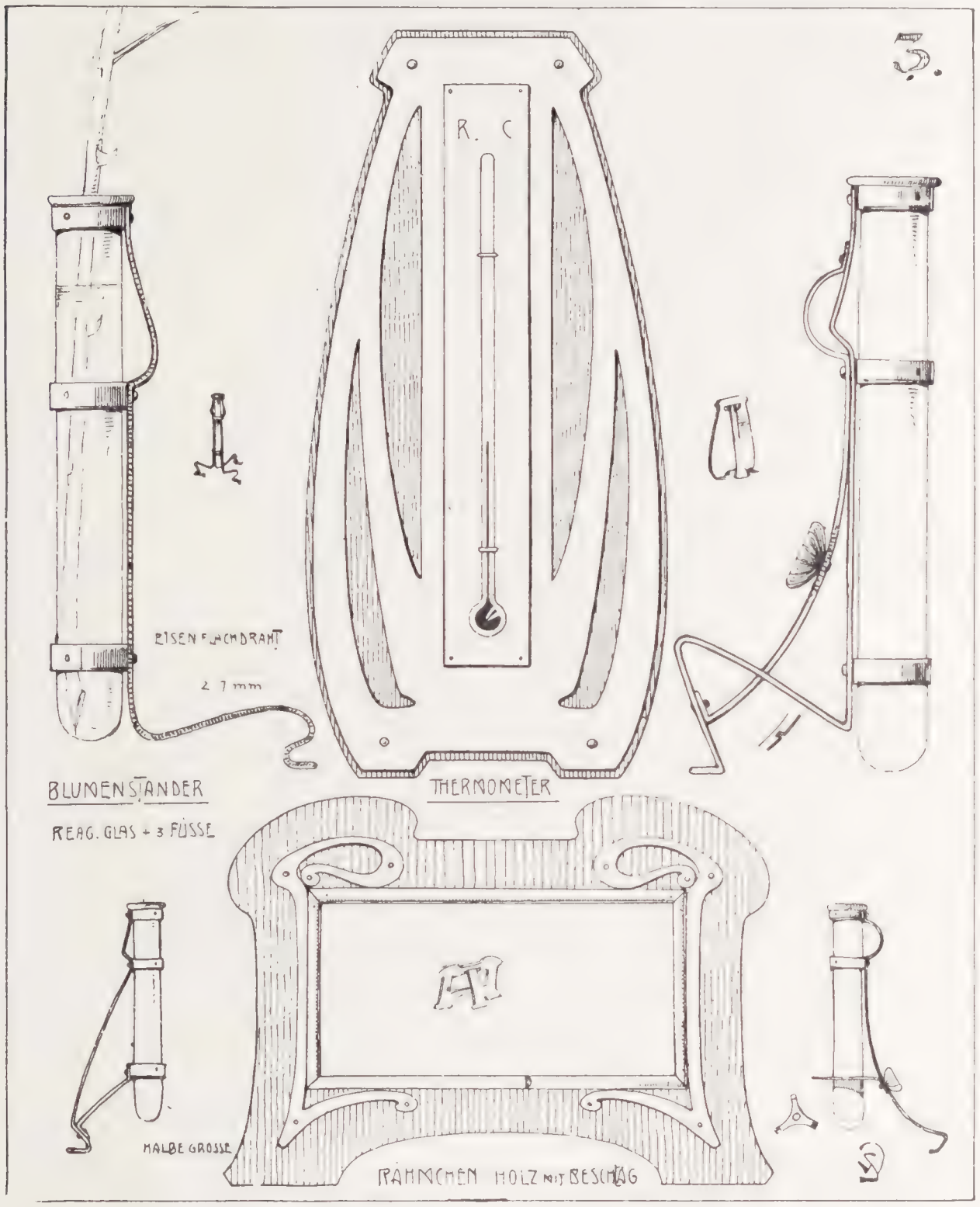
But a somewhat more detailed discussion is required by the development which manual training has reached in the United States of America. There are various causes by which this altogether favorable development is explained; on the one hand the high esteem of technique and of practical pursuits, which is characteristic of the American, and on the other hand the thorough study of psychology, which led to the appreciation of the technical work as an educational means. This last circumstance has led to the adoption of manual work to such an extent that from it have arisen types of schools to which we in Europe have nothing similar. The most interesting of these types of schools is the manual training-high school which corresponds to some extent to our *Realschule*, but is essentially different in this, that one-third to one-fourth of the whole time of the instruction is given to practical shopwork. The first school of this kind was established in St. Louis in 1879. At the present time the total number of schools of this kind already exceeds 230. It is not possible here to go into details as to the organization, but the fact should be emphasized, that these schools are enjoying a great popularity and are capable of giving training peculiarly adapted to practical life.

But in the American public schools also the manual work is carried on on an extensive scale and with the expenditure of large sums, especially in the industrial cities. Besides this, the facility with which the American breaks through every tradition, has led to the development of schools in which the instruction as a whole is mainly based upon the technical work of the pupils. These schools exhibit the most consistent working out of the "work-principles" and are from this point of view extraordinarily interesting.

MANUAL TRAINING IN GERMANY.

The results of the investigation of manual training in Germany made by Principal Gaertig, of Posen, under our directions during the past year, may be briefly summarized as follows: The total number of schools and institutions which carry on manual training has changed very little during the last few years; nevertheless an important re-adjustment of the individual organizations has taken place in favor of manual work in immediate connection with the schools. Our movement with its pedagogical bearings has gained in power and in extent, while the efforts of others, especially of an agricultural nature have lost ground. Those schools also, with their one-sided pursuit of manual instruction, which at the last census were well represented, have decreased considerably, especially the extreme chip-carving and cardboard schools.

Accordingly we will find from the information at hand, that the schools, which, at the time of the founding of our society, stood at the front in the interest of domestic industries and domestic sloyd, are being



FROM PLATE 3 OF "SKIZZEN ZU MATALLARBEITEN" BY W. SCHABER, OF MANNHEIM. (SCALE, 1 INCH = 2 1-2 INCH.)

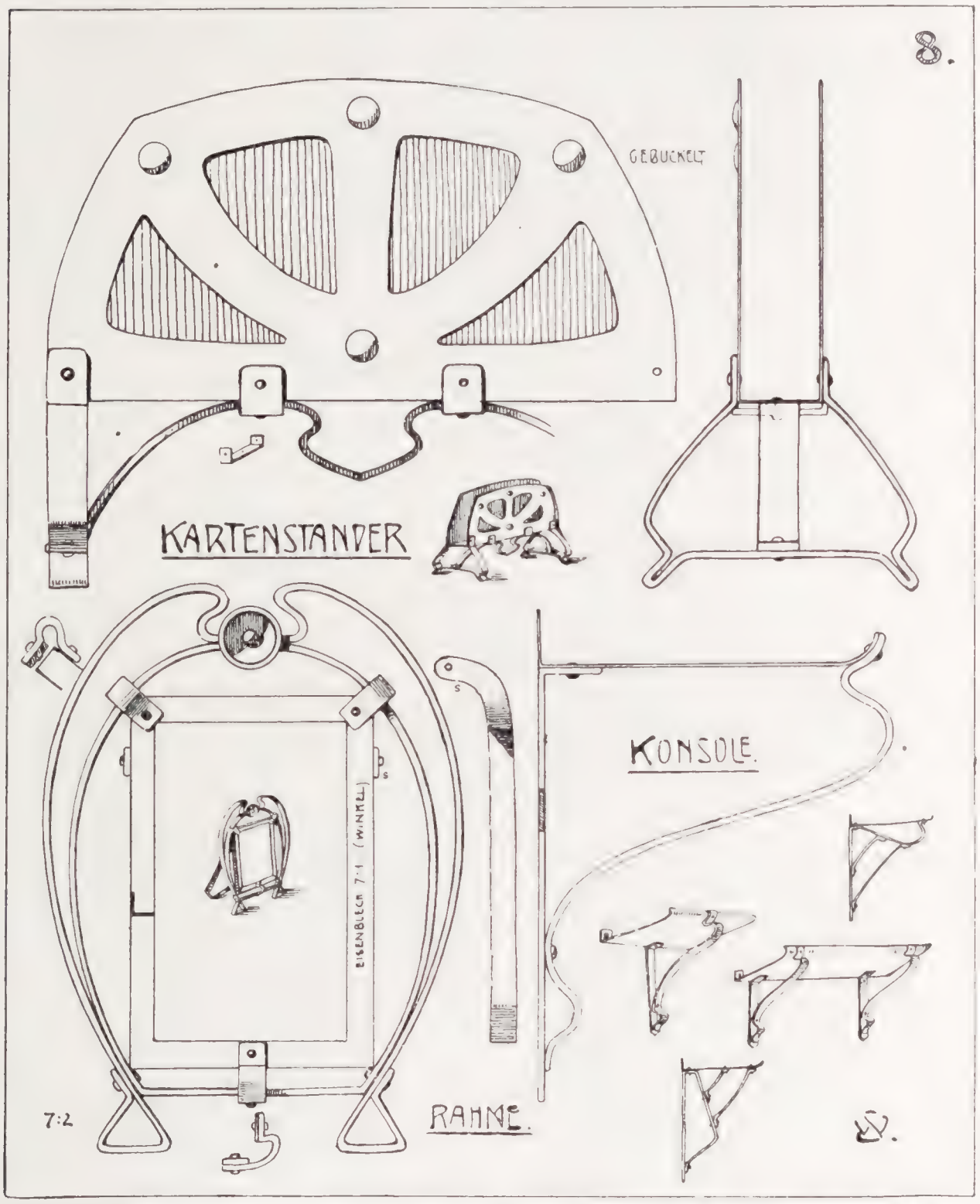
promoted in only a few districts of the Province of Schleswig-Holstein Within the boundaries of Apenrade there are, in four parishes, domestic sloyd societies which in six congregations support work-schools; in Tondern a similar society has been active with success for twenty years.

The branches of study here are mainly mat-weaving, brush making, besides benchwork and wood-carving; in one school there is also training in saddlery work. Various schools of this kind, of which we could get information years ago, have meanwhile failed. Leaving out of consideration a number of institutions for the blind, which aim to give their students earning ability by trade instruction, also educational institutions for those morally deficient, and agricultural winter schools, which, in accordance with their special purpose, follow a special industrial course, the pure domestic sloyd instruction is still practiced in a few orphan homes and institutions for deaf and dumb mutes; but all other private schools, including even ten institutions for the blind, have introduced the prevailing educational manual work.

Nor does the manual work carried on in Strassburg under the auspices of the city government have the purpose, as was formerly the case, "to prepare the pupils of the public schools, even during their student days, for an industrial calling;" but it is to be primarily educational. The instruction embraces three departments for clay-modeling, locksmithing, relief carving, cabinet-making and turning; two departments for the art of locksmithing and chip carving, and one department for surface carving. In the public school of Steinbach in Sachsen-Meiningen the pupils are prepared by instruction in metalworking for their future calling as knife makers or locksmiths. In a few other places there appears besides this a certain effort to cultivate definite forms of work, as metal-filing and violin-carving, in addition to the educational manual training, so that the pupils by this means are trained for a suitable activity later in life in the factories and the workshops. All these efforts appear as exceptions in the present movement for the introduction of manual training. Of all the schools and institutions existing at present in Germany that carry on manual training, about 98 per cent. observe its true pedagogical purpose. Their total number according to the information at hand at present reaches 882.

The majority of these schools and institutions carry on manual work as an optional branch. All the auxiliary schools and the private educational institutions, on the other hand, have introduced manual training as obligatory. In some public schools, also, the latter method has been followed with the approval of the state boards. The instruction is given by the regular teachers. The number of teachers is more than 1500; in addition to these there are employed, especially in private educational institutions, some eighty additional mechanics as directors of manual instruction.

The branches of manual work fall short, with a few exceptions, of that established by the German Society in reference to the methodical working out of the course of study offered. Although on the other hand,



FROM PLATE 8 OF "SKIZZEN ZU METALLARBEITEN" BY W. SCHABER OF MANNHEIM. (SCALE, 1 INCH = 2 1-2 INCHES.)

according to the last census returns, approximately 600 schools still practice chip carving, only about 300 workshops at present carry on wood carving and in large part, with the expressed purpose: "In connection with benchwork" or "with surface and relief carving." Although six

years ago there were 144 schools and institutions that carried on chip carving only, there are at present only sixteen, mostly rural orphans' homes, parochial schools, etc. The number of schools that practice cardboard work only has also decreased. It fell from 103 to 31. On the other hand, the number of those schools which have introduced four or more branches of manual training has increased; especially have the exercises in the lower grades, and the exercises in benchwork and modeling, gained ground. The last named, which according to the latest statistics had been introduced only in eleven schools and institutions, is now carried on in 112 workshops. The exercises of the lower grades have experienced an increase from 47 to 165 workshops, those of the benchwork from 336 to 400. The number of workshops for metalwork has remained the same; a decrease is to be recorded only in the case of woodwork in the country districts. On the other hand, a large number of schools have taken up work in natural wood, which were not represented in the former enumeration.

The various pedagogical tendencies of our system of manual training have been described in another place. Here it is only to be noted that the majority of our centers of manual-training influence belong to the practical-formal tendency. In these a system of methods and lectures on the individual branches of study have been developed. Most widely known of these are the lectures conducted by the German Society in the *Seminar* at Leipzig, but the cardboard course of Dresden, the easy woodwork courses of the Berlin schools, the courses of Dr. Springer, the course for benchwork in Upper Schlesien, the Swedish sloyd according to Nääs, the courses in woodwork at München, Karlsruhe, Copenhagen and Strassburg, the modeling according to Wild of Munchen, the Ulmer surface carving, the carving of Enderlin, have been widely introduced; and this leaves out of consideration the number, by no means small, of schools and institutions that follow their own courses. The auxiliary schools place manual work directly in connection with the mental instruction and connect it to some extent with the Froebel work, and to a large extent also with the manual instruction according to Sherer; a few Hessian schools also lean toward the course of Professor Kumpa. Certain auxiliary and public schools practice Hertel's system, others, on the other hand, those of Barth and Niederley or Dr. Brückmann. Various higher institutions, intermediate schools, and *Seminaren* practice educational manual training in the interest of instruction in geometry, physics and geography. The city school No. 1 for boys in Darmstadt has introduced required instruction of this kind (Hilfsdorf System.)

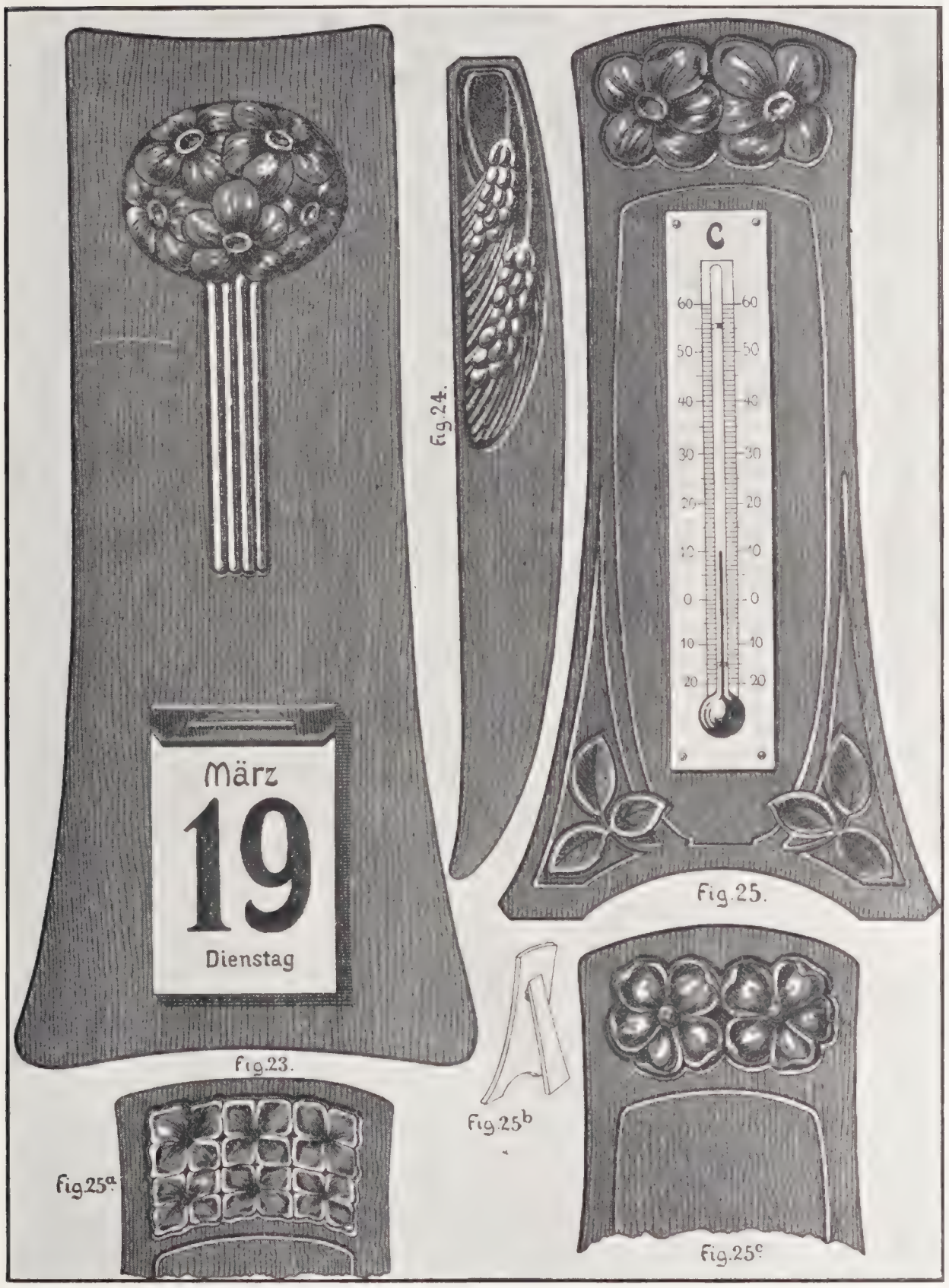


PLATE II OF PART II OF "NEUER LEHRGANG FÜR SCHNITZEN" BY MAX ENDERLIN OF MANNHEIM. (SCALE: 1 INCH = $2\frac{5}{8}$ IN.)

The survey of the development of the German manual training, here submitted in its bare outlines, shows clearly that our efforts are gradually making progress in intensity. The effort to establish school workshops are fruitless in many cases because of lack of means to supply the necessary funds for the introduction and continuation of instruction, yet in recent years a number of medium-sized and larger cities are establishing manual training to an increasing extent; for example, there are expended upon the promotion of our manual training in Frankfurt a. M. each year 12,500 marks, in Charlottenburg 10,000, in Mühlhausen in E. 8,000, in Strassburg in E. 6,600, in Dresden 5,600, in Hildesheim 5,160; Karlsruhe expended 5,000 marks, Posen 4,170, Mannheim 4,000, Hagen in W. 3,500, Bonn 3,200, Aachen 2,400, Königsberg 2,200, Zwickau and Leipzig each 2,000, Heidelberg and Schöneberg each 1,700, Gorlitz and Duisburg each 1,500, Barmen 1,250, Lübeck 1,200; Augsburg, Chemnitz, Magdeburg and Köln each 1,000 marks, etc. To this must be added the additional expenses which the localities undergo for the equipment of workrooms and the lighting and heating of same. The state organizations still make appropriations rather small for the promotion of manual training instruction in their jurisdictions, Prussia and Saxony furnishing notable exceptions, also Upper Schlesien, where a number of district boards give special support to the workshops in the country. Because of the inadequacy of the support by the communities and the state, the activity of the Society must give aid in many places. In the interest of a further extension of manual training, especially in the country and in small cities, it is necessary that first of all, on the part of the individual state administrations, larger funds be made available for the promotion of our movement. Of the willingness of the diets concerned there can be no doubt; that has been shown by the recent discussion of Schenkendorf's proposition in the Prussian Chamber of Deputies. Let us hope for an early fulfillment of our purpose; it will be accomplished when our friends go direct to the deputies of their districts with the same demands.

WORK IN MANUAL ARTS FOR THE RURAL SCHOOLS.

FRED J. ORR

Director of Manual Arts, State Normal School, Athens, Ga.

IN a consideration of what should characterize manual arts for rural schools in the South, the general conditions to be met should be stated in order to get a reasonable view point. The situation confronting this State Normal School in Georgia will probably be typical.

As is well known the dominant industry in the South at present is agriculture. This means that the majority of the school population is to be found in rural districts and small towns and villages, rather than in cities. The school problem is therefore, in the main, one which is concerned with rural conditions.

The most striking thing revealed by a tour of observation through a country district will be that people as a whole do not know how to live. Even the well-to-do homes illustrate this fact. The lack of intelligent planning is everywhere evident in home arrangements. Although the temperate climate in which we live affords sunshine in great plenty, in many instances the blessings of it are denied the occupants of a house when they are indoors — the side of the house facing south having been designed with but few windows, these few, narrow, and poorly placed. The effect from inside is one of discomfort while from outside it is a display of bad proportions. Again, though there may have been stone in abundance on the farm nearby, the underpinning to the house is only a pillar at intervals for actual support while intervening spaces have been left open for draughts of air that render the owner uncomfortable in winter. Moreover the impression given is that the structure is on stilts. The color of paint also that is used on many dwellings renders unsightly an otherwise good effect. Muddy yellowish brown with red finish, or a very gay pea green trimmed in bright yellow and red are actual examples that might be improved upon. Nor do the "trimmings" in wood work add beauty. Whimsical expressions of a jig-saw is about all that can be said for much of it. A look into many interiors does not offer relief. One is greeted by a narrow white-walled hallway ungenerous in its hospitality, frigid in its welcome. Very probably the living room will be found on the northern side of the house; a vivid yellow-green tone on its

walls will not add to one's warmth, nor will the carpet of gorgeous design and color make for better harmony or peace of mind. The furniture will very likely be of a pattern displaying much superficial and imitative decoration though withal rather the less useful thereby. Outside the house and immediately surrounding it similar conditions prevail. In many instances the barns and stables have been given preference as to location and many times the barn is a building more pretentious in appearance and of better design than the dwelling. Frequently a grove of trees arranged in nature's way has been hewn to the ground and new trees planted in their stead—in order to get them in rows! Often there is evidence of great love for plant life but the shrubs are in disorderly spots or rows and bright flowers scattered about in such fashion that their intrinsic beauty is marred.

And so on—through the gamut of uncultivated taste.

It is not to be understood that all, or even a majority of homes, illustrate this description. Nor is this a condition of things to be found only in the South. It all indicates, however, that people need to be trained in the ordinary ways of everyday living. It is a field for the refining influence of taste and good judgment applied to everything with which one comes in contact in the daily regime. Whatever the channel through which such training comes, it is fundamental, because it has to do with the influences and environment of family life, the importance of which none will gainsay. To teach people how to make the most of their resources, whether the supply be scanty or plentiful; to instil that conception of beauty which embodies conformity to purpose in the highest degree; and to illustrate constantly the fact that the simplest means of supplying wants are usually the best—these are some of the forms of training needed.

But to aim at the elevation of home conditions is not all. Nor is it any longer true that this section of the country is entirely agricultural. A review of the past ten years of the industrial history of the South will show very great strides in the manufacturing industries, especially those working with cotton. Upon inquiry it will be discovered that the grade of textiles now turned out is principally of a cheap quality. A pound of cotton valued at ten cents is converted by the average Southern cotton mill into four yards of cloth worth three times as much, or thirty cents. The same pound of cotton, if shipped to England, can there be woven into cloth worth as much as ten dollars, or one huudred times the value of the material in its crude state. It may be true that there is actually no more profit for the manufacturer in the higher grade than there is in

the lower grade of cloth. This does not alter the fact, however, that the more expensive quality puts more money into circulation both in the process of making and after being placed on the market. And, moreover, it is always to be remembered that the enormous increase in value of the raw material is realized by the community in which it is manufactured.

Now there are cotton factories all over this land in cities and in small towns. It is desirable that all the money which is to be had out of cotton, from the farm through the factory to the final consumer, shall be kept here. There is only one feasible way to do this, viz: to produce through school processes, the kind of skilled workmanship which will eliminate foreign competition and invade foreign markets with finished products instead of servilely furnishing them with cotton in the bale.

Now these two phases of industry: agriculture, with its accompanying rural life; and manufacture with its great economic possibilities, present the educational need of the South both from economic and purely educational standpoints. A normal school whose legally defined business it is to prepare teachers for common schools must keep these conditions in view.

A number of problems are involved in the attempt to meet this situation. Perhaps the one most difficult of solution is that suggested by the committee of five appointed by the National Education Association, viz: "In the beginnings of industrial education in any community, immediate practical results that will appeal directly to the interests of the people who support and maintain the schools must be made prominent." To give an untrained patronage the kind of thing most needed, and at the same time appeal to its interests is not always easy. Manifestly the kind of problem desired in manual arts work is the one which involves very obvious utility. If it can be made to have actual money value, well and good. But the processes of its solution or construction must be pedagogic. Leading up to the tangible result must be a number of undoubted educative exercises. In order to have such work satisfactorily done in common schools, the first essential is a trained teacher. This is another one of the conclusions named by the Committee of Five above quoted.

Hence, finally, the normal school must solve the problem. It does not seem to be a circumscribed standpoint from which to discuss the general situation when this fact is remembered. Reviewing then the above conditions: the normal school must prepare teachers to present manual arts in a form that will appeal to rural classes of people at the same time that it gives them an uplift; that will involve the cultivation

of taste made desirable by manufacturing activities; and that will finally be educative in the largest sense of the word.

The main body of students entering our normal schools at present come from grammar schools. An ideal condition would have them graduates of colleges or certainly of high schools. Generally they have had no training whatever in manual work. Sometimes the girl has "studied

art" somewhere and she has to be torn down and built over owing to the false conception she has of the subject. It will be a splendid thing when the type of schools represented by many girls' seminaries wake up to new views as to the teaching of art. But we must take students as we find them, and in four years cultivate some ability to teach manual arts. Technique is a first desideratum. Incidentally, however, every exercise in a manual arts course is a technical exercise; therefore, instead of making technical skill the end, it is possible to make it the means, and through its results, accomplish the solution of some of the larger problems at hand. This is the spirit in which every phase of the course in this school is planned. If a problem in wood construction can be given concrete form, involving in its solution various kinds of technical skill and illustrating in its completion the type of object which, when taken home by the student will, prove useful and truly beautiful, then the school patron is convinced, the rural home environment is improved, a new

standard of taste is set up, and the whole round of fundamental interests aimed at in the beginning have been served.

The screens in the accompanying illustrations are typical problems of this kind. In undertaking such a construction the student first decides, if possible, where his completed screen is to be used. This will in a measure determine its character—its size, number of panels, prevailing color, etc. Sketches are then made which will indicate roughly the proportions desired in each panel, and the panel divisions. After these are finally adjusted, accurate working drawings are undertaken, a fixed number being required. Each student is to show in complete form a number of views of the joint construction contemplated, the actual dimensions of the several parts of these joints being arrived at by discussion. A front elevation of the entire screen is required, showing dimensions, panel divisions, and location of hinges, and indicating the character of construction at each joint. The question of color, decoration, and finish, is then considered, the predominant tone being determined by the prevailing tones in the place where the screen is to be used. The finish may be a stain to harmonize with the cloth used or a cream enamel. The method of applied decoration is left optional. In any case the design is worked out from some motif in nature, the conventionalized color effect following a series of pencil sketches made from the model chosen. The detail of method in forming the design will of course be governed by now it is to be executed, whether in applique, stencil, glass, bent iron, tooled leather, or burnt effect. All the working drawings, including color pieces, are handed in and gone over with the student individually, every detail being considered fully before the wood has been touched. When every preliminary is complete, benchwork is begun and the woodworking processes explained and practiced throughout the various exercises that are presented by the problem.

These working details show the correlations of different phases of manual work emphasized in one problem. The completed product is

beautiful and directly useful. The prospective teacher who has made it has gained technical skill in drawing, color, tool work, and other useful handicraft, and has meanwhile set up for himself a definite standard of taste which will serve him broadly in all the ways of his professional career. With his manual skill and his trained esthetic judgment he is capable of directing a variety of tool operations such as his local situation in a farming or manufacturing district may develop the need of, and in addition he is ready to train children to a new conception of beauty, and a new appreciation of what can be done with ordinary materials. The screen will take its place in a home and exert its influence silently in making its environment more beautiful. Not seldom is it true that one really beautiful object will revolutionize an entire group, from sheer contrast. Indeed it is frequently the case that students begin their plans for a new arrangement in their homes before leaving this school.

The same general scheme is applied in every variety of work. Drawings from nature are conventionalized and applied to the decoration of baskets, woven rugs, pottery, house furnishings, walls, windows, many simple and useful articles made of wood, etc. Attention is called to good and bad designs in houses, furnishings, and planting, by means of charts made from clippings, each chart showing the contrast between good and bad. These contrasts are discussed as a part of regular class work, the effort being all the while to place the student on solid grounds of reason as to why a plan or an arrangement or a design is good or why it is bad. If matters can be reasoned out when it comes to a demonstration in the rural community, the patron is more easily convinced. What to him seems arbitrary judgment is likely to throw him into an antagonistic frame of mind. For every man—and especially every woman—thinks he knows a beautiful thing when he sees it!

Always the materials and the methods used here are made to serve in the main the great ends in view, and it is believed that the desired results are being surely, if slowly attained.

STANDARD DRAFTING CONVENTIONS FOR A MECHANIC ARTS HIGH SCHOOL.

CHARLES B. HOWE

THE growth and development of the manufacturing industries have made the standardization of conventions essential. An absolute universal standard would, in the nature of things, be quite impracticable, nevertheless an extensive investigation shows that many conventions are in general use, so that it may be assumed that there is an average practice. For purposes of instruction it is this general average practice that should prevail as a standard.

The relation of the drawing to the shopwork is of such vital importance that a brief statement concerning it should be made in connection with the subject under discussion. At the outset it must be admitted that the fundamental purpose of mechanical drawing is construction; from the commercial standpoint it has no other reason for existence. While fully recognizing the educational value of geometrical drawing in all its phases, it must still be borne in mind that its ultimate purpose in our general scheme is to contribute to the efficiency of shop production: From this point of view it follows that in a rational plan all designs should emanate from the draughting room. That is to say, in the originating of a design it should bear the check mark of three parties, viz. the designer, for lines and proportions; the shopman for construction; the draftsman who prepares the working drawing. In the practice of mechanic arts high schools the adoption of such a plan insures good design, correct working drawings, and establishes the proper relations between drafting-room and shop, thereby securing greater efficiency, economy, and interest.

There is one further consideration which should be noted before presenting a scheme of conventions, viz: the purpose of the shop-drawing is to reveal clearly and accurately the form and dimensions of the object to be constructed. It is this fact that makes the adoption of conventional standards desirable, and in its application the draftsman must use discretion and judgment. In other words, the draftsman is privileged to omit parts and even views, showing no more and no less than is necessary to convey the desired information; he may even take liberties with projection if thereby he facilitates the desired end.

With all of the above fully in mind the department of mechanic arts of the Stuyvesant High School has prepared and adopted the following conventions. Many of them are so common and well known that they need hardly be presented here except for the sake of completeness.

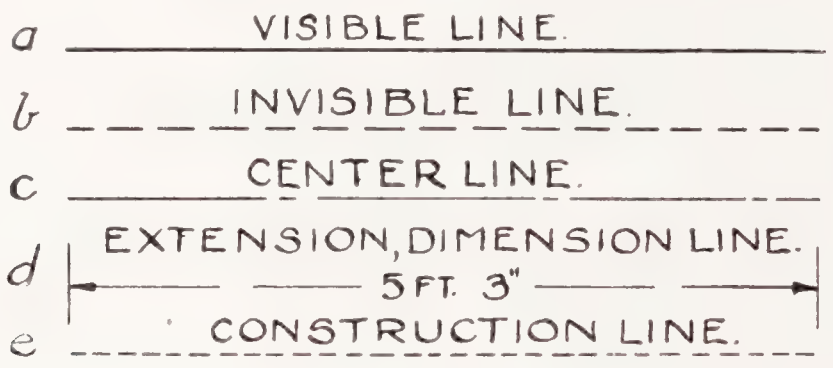


FIG. 1.

STANDARD DRAFTING CONVENTIONS AND RULES OF PRACTICE.[1]

I. LINES.

1. Visible edges and outlines of objects should be represented by full lines of medium width. Fig. 1. (a).

2. Invisible edges and outlines of objects should be represented by broken lines consisting of short dashes of the same width as full lines, separated by spaces of about one-half the length of dashes. (b).

3. Center lines and lines indicating the position of the plane in which a sectional view is to be made should be broken lines consisting of alternate short and long dashes. (c).

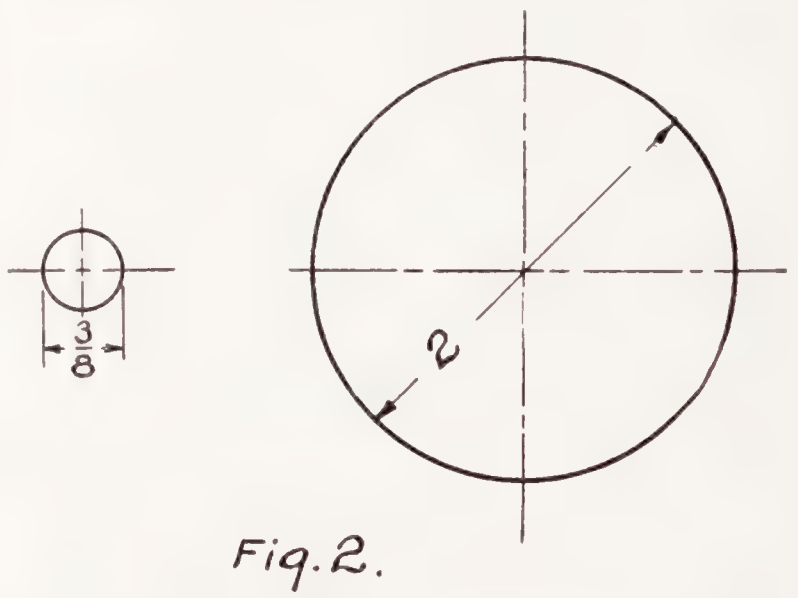


Fig. 2.

4. Extension lines, which project from points between which dimensions are to be expressed, should be fine, broken lines, consisting of dashes of medium length. Such lines should not touch the outline of the object, and should extend slightly beyond the point of the arrow-head on the dimension line. (d).

[1]Acknowledgments are due to Professors Anthony and Coolidge from whose texts material has been drawn, also to Mr. Allen K. Sweet of Boston for suggestions. The drawings were made by Harold Gross a third-year student in Stuyvesant.

5. Dimension lines should be fine, broken lines, consisting of long dashes, interrupted for the figures expressing the dimension. These lines should be terminated by arrow-heads whose points touch the proper extension lines. (d).

6. Construction lines including all lines which are in the nature of diagrams and are not essential outlines or edges of the object represented should be fine dotted lines. (e).

7. Fine full lines in red ink may be substituted for center, dimension, extension and construction lines except in drawings to be used as negatives.

8. Diagrams should appear only in connection with notes and not as parts of a working drawing.

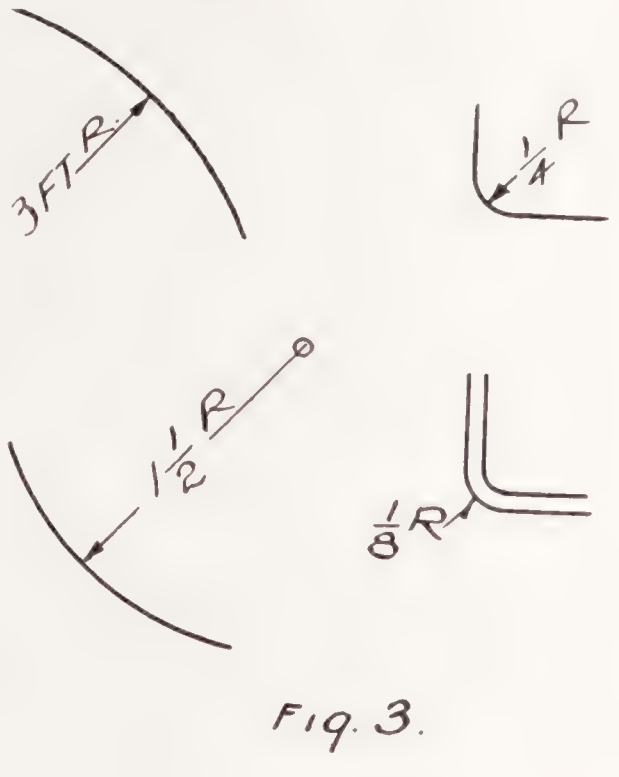


Fig. 3.

II. DIMENSIONS.

9. Figures should read from the bottom and right-hand sides of the drawing. Fig. 4.

10. Dimensions of length should be placed below rather than above the view, and rarely, if ever, upon it. Minor dimensions may be placed on a view.

11. Over-all dimensions should always be given and placed outside of all sub-dimensions.

12. Dimensioning from invisible edges should be avoided when possible.

13. Dimensions should read to center lines and to faced or finished surfaces.

14. Dimensions should read to center lines of circles and never to their circumferences.

15. Circles are dimensioned by their diameters, and arcs by their radii. Figs. 2 and 3.

16. Radial dimension lines should terminate in an arrow-head at the arc and a small circle around the center unless the latter is indicated by center lines or the radius is large. Fig. 3.

17. Section lines should be broken for a dimension placed in a sectional area.

18. Dimensions should be kept on one view if possible and should not be repeated.

19. Fraction lines should not be inclined.

20. Dimensions should never be placed on center lines and never be crossed by a line.

21. Distances to twenty-four inches inclusive should be figured in inches.

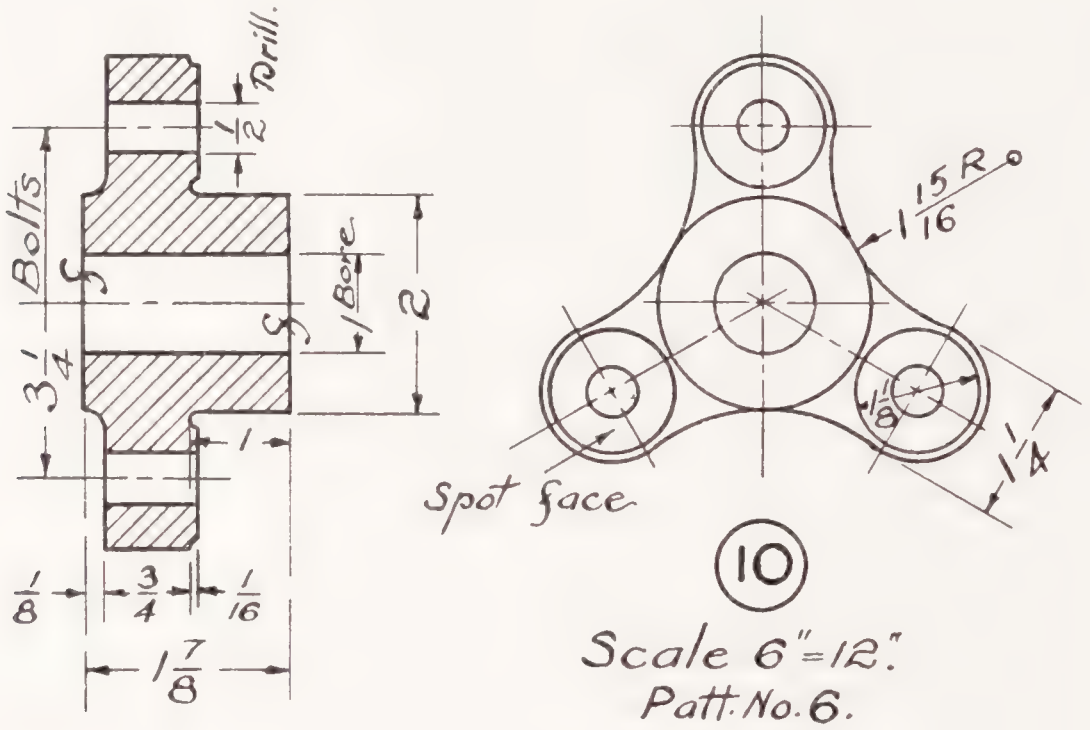


Fig. 4.

22. If all the dimensions on a drawing are in inches, the ″ marks should be omitted. Use Ft. to denote all dimensions in feet. Fig. 1. (d).

23. Drawings or castings should be figured for the machinist, not for the pattern-maker.

24. Sub-dimensions should be chosen with reference to the measurements which will be made in constructing the object.

25. Dimensions should indicate full size independent of scale.

26. In figuring an angle give the degrees to which the planer head is set; use the abbreviation Deg. instead of °.

III. SECTIONS.

27. All sections of metal should be shown by fine diagonal lines spaced in proportion to the area of the section.

28. Conventional sections may be employed when their use is advantageous.

29. When the object is symmetrical one-half only may be sectioned, unless the section is small. A section of a symmetrical piece should be made symmetrical. Fig. 4.

30. Never section bolts, nuts, screws, shafts, spindles, keys, gear teeth, arms of wheels, etc.

31. Indicate the place at which a section is taken.

32. Wood may be sectioned so as to show its grain if desired.

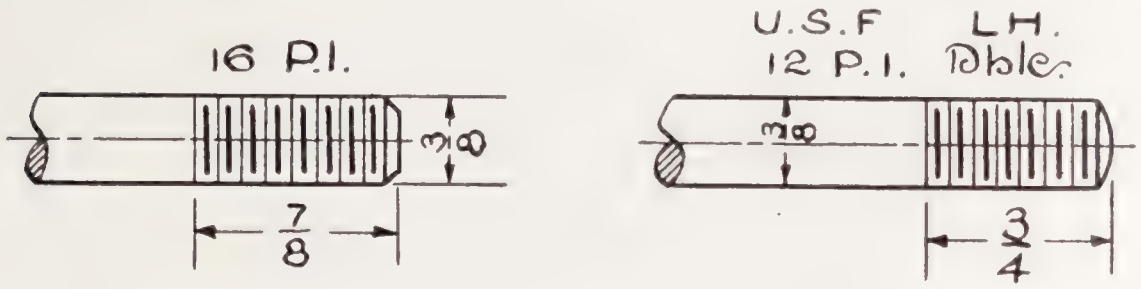


Fig. 5.

IV. CONVENTIONS.

33. U. S. Standard and V threads[2] should be represented as shown in Fig. 5; the lines need not be spaced to denote the pitch of the screw represented.

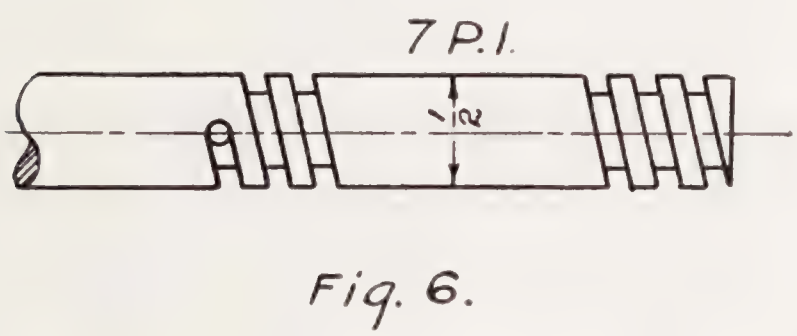


Fig. 6.

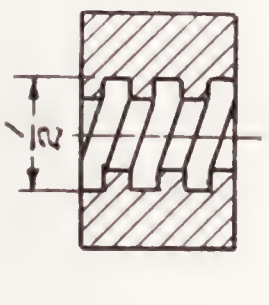


Fig. 7.

34. The form of the thread, if other than the usual, should be stated in a note. The diameter and pitch of a screw should always be given. If a screw has a left-hand or a multiple thread a note should call attention to the fact. Fig. 5.

[2]It should be noted that the convention here shown is a departure from the usual practice and should therefore be explained. The conventional thread does not indicate the exact pitch of the screw by the spacing of the lines and unless otherwise stated, a right-hand thread is understood. If a left-hand thread is wanted the draftsman will always call attention to it in a note and not rely upon the direction of the slant to supply the information. In view of these facts, and inasmuch as the indicated thread is a convention and not a true representation of the helix, there is no reason for slanting the thread. When a tapped hole is shown in section the slanting line is confusing. The convention shown is practiced by the General Electric Co. and is rapidly growing in favor.

35. Square-thread screws should be represented as in Fig. 6. The lines should be spaced and slanted in accord with the screw shown, unless the drawing is small or the pitch fine. An invisible square thread should be drawn like Fig. 6, with broken lines.

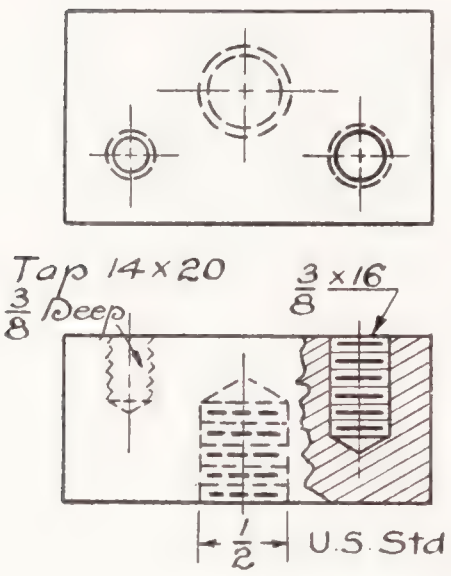


Fig. 8

36. A square-thread nut is shown in section in Fig. 7.

37. Tapped holes should be shown as in Fig. 8; tapped holes with screws in place, Fig. 9.

38. Finished surfaces should be indicated by the letter *f* written across the line which is the projection of the surface to be finished.

39. If a piece is to be finished all over, the abbreviation F. A. O. may be written in connection with its name. Special kinds of finish should be specified in a note; e. g. polished, hardened and ground.

V. PROJECTION.

40. Drawings should be made in third angle projection, the top view being above the front view; the right side view should be at the right of the front view, and the left-side view at the left. The right and left side views should be adjacent to the front view rather than to the top. The different views should represent the object in natural positions.

VI. SIZES OF DRAWINGS.

41. The following sizes for drawings, based on standard catalog sizes (6x9 and 9x12) are to be used for all purposes:

A	6x9	¼″ margin inside.
B	9x12	
C	12x18	½″ margin inside.
D	18x24	
E	24x36	½″ margin in side.

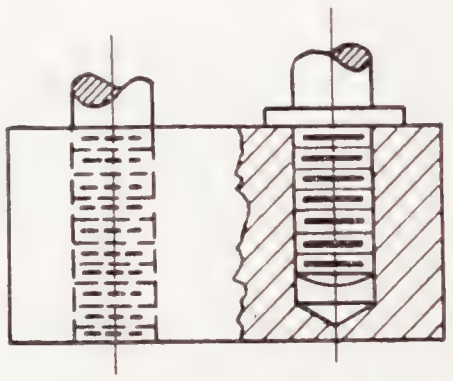


Fig. 9.

VII. LAYOUT.

42. Select such views as will best show the object, but as few as will show it clearly, using sections in preference to other views.

43. Drawings should be made to as large a scale as possible. In no case should other than a standard scale be used.

44. Forging drawings should always be detailed, and, if possible, drawn full size.

45. Parts that are well represented in one view *may* be omitted in the others—such as bolts and screws, the location *only* being shown in the other views.

46. A view may be omitted where a written note will serve instead.

Form of B.M. to be used when only one sheet is required for the drawing of an object. Form and dimensions of TITLE for sheets D (18 × 24), E (24 × 36).

BILL OF MATERIAL.

No.	NAME.	Mat.	Fig.	REMARKS.
1	PULLEY.	C.I.	1.	
1	SHAFT.	C.R.S.	2.	
1	HDLS SET SCREW.	S.		$\frac{5}{16}$-18 $\frac{5}{8}$ L. CUP PT.

ASSEMBLY.

3 × 4 HOR. ENGINE.

STUYVESANT HIGH SCHOOL.

NEW YORK DATE.

SCALE 1"=12".

Des Del. Tr. Ck.

Approved

Fig. 10.

47. When a view shows circles only, it should be omitted and "D" (diameter) placed after the circular dimensions.

48. As far as possible drawings of related parts should be kept near together.

49. Sizes or names, pattern, list, or forging numbers are not to be placed on assembly drawings, except when details are built from these drawings.

VIII. TITLE AND INDEX.

50. Each drawing is to bear a title of the form and dimensions indicated in Fig. 10 and is always to be placed in the lower right-hand corner.

51. Titles of details should appear under the drawings of the same and should include name or number of part, scale, finish—if F. A. O. and pattern or list number, if any. Fig. 11.

52. For sub-titles and notes, letters and figures should be made 1-8″ to 3-16″ in height. All lettering is to be as simple and uniform as possible. For titles and sub-titles use capitals, for notes, etc., capitals and small letters.

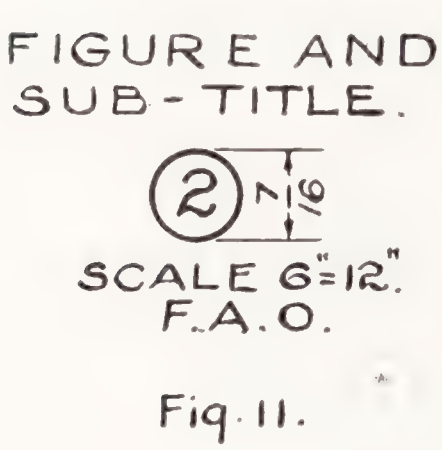


Fig. 11.

53. An index number is to be placed on each drawing in the lower left-hand and upper right-hand (opposite) corners, consisting of the letter denoting the size of sheet and the serial number, e. g. B-2.

54. Drawings and patterns should be properly indexed and cataloged as soon as made.

IX. BILL OF MATERIAL.

55. When an object consists of more than one part, a bill of material may be made as shown in Fig. 10. It should be placed just above the title. If more than one detail drawing is required to show the object a separate B. M. should be made. Fig. 12.

56. The B. M. should call for all standard machine parts, such as screws and bolts, whether shown on the drawing or not.

57. Abbreviations to be used for metals:

C. I.—Cast iron.
W. I.—Wrought iron.
M. S.—Machinery steel.
T. S.—Tool or cast steel.
C. R. S.—Cold rolled steel.
M. I.—Malleable iron.
S. C.—Steel casting.
Br.—Brass.
Comp.—Composition metal.

X. TRACINGS.

58. Either the glazed or dull side of tracing cloth may be used, but when tracings are to be colored they should be inked on the smooth side of the cloth and the tint applied to the rough side.

59. Tinting, shading, and shade lines are not to be used unless the object shown is of such a nature that its construction is made clear in no other way.

STUYVESANT HIGH SCHOOL.

7" HAND LATHE.

BILL OF MATERIAL.

No.	NAME	Drawing	Fig.	REMARKS
	CAST IRON			
1	Bed	C-26	1	Patt. No. 35
1	Head Stock	B-32		24
1	Tail Stock	B-41		31
1	Cone	A-50		26
2	Legs	C-26	2	20
	MCH. STEEL			
1	Head Spindle	B-30	1	Ground
1	Tail Spindle	B-30	2	Ground
	TOOL STEEL			
2	Centers	B-30	3	1 Hardened

Form of B.M. to be used when more than one sheet is required for the drawing of an object.

Date _____ No. _____ By _____

Fig. 12

60. Tracings are to be kept on file and used only for blue-printing. For reference purposes use the blue-print file.

61. Drawings of regular exercises for the shops should be made on sheets A (6x9) and B (9x12) when possible. These drawings are to be indexed as described above and may also be indexed by courses as follows:

J. C.—Joinery and cabinet-making.
W. T.—Wood-turning.
P. M.—Pattern-making.
F. G.—Forging.
M. W.—Metalwork.
M. S.—Machine shop practice.

AN INEXPENSIVE EQUIPMENT FOR METALWORK.

HAROLD W. MANSFIELD,
Director of Manual and Industrial Arts, State Normal School,
Aberdeen, South Dakota.

The majority of schools, in laying a foundation for a manual training course, plan only for work in wood. They fear that to take a step forward and to add an equipment for metalwork would overtax their limited resources.

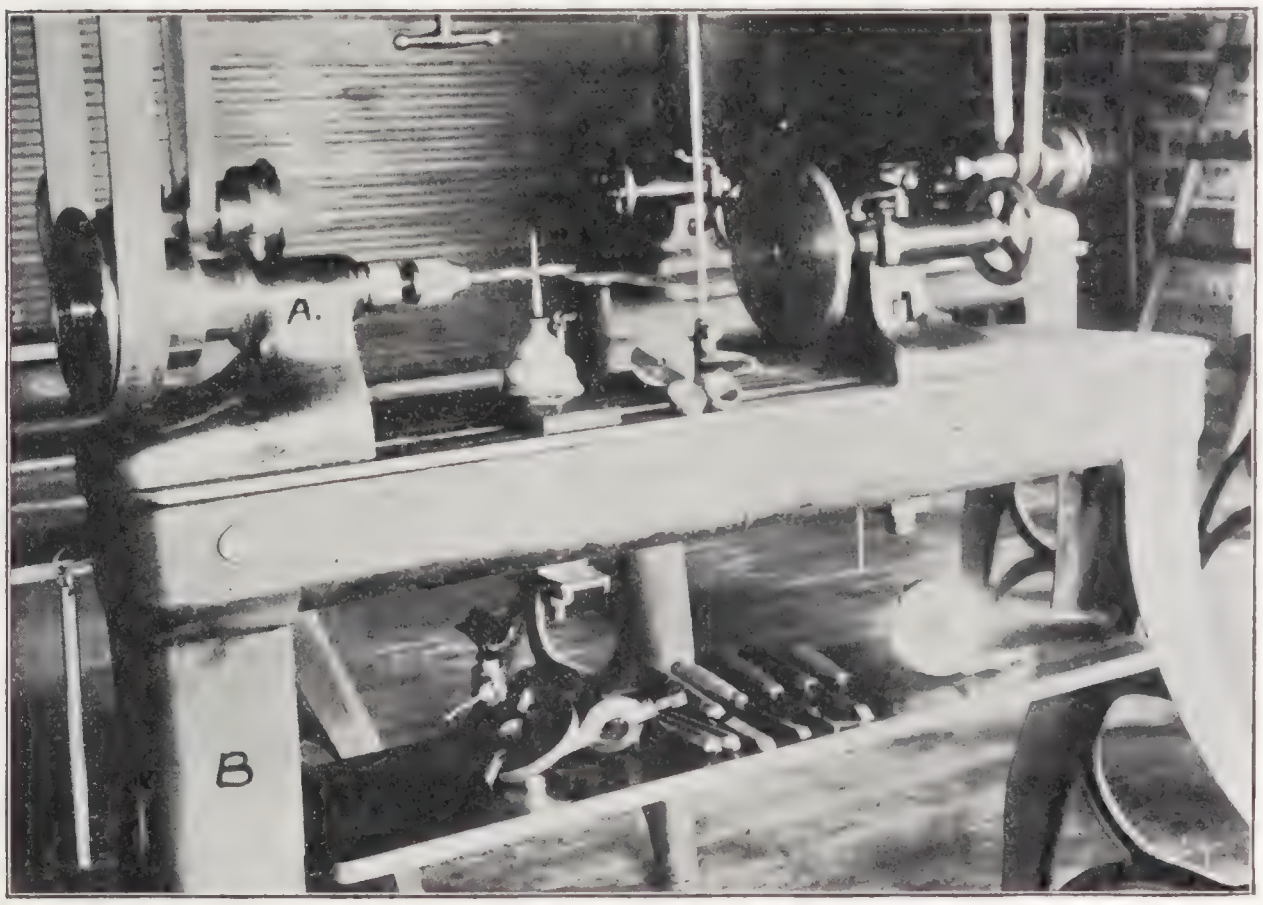


FIG. I. SHOWING (A) LATHE EQUIPPED FOR DRILLING AND (B) EXTRA EQUIPMENT FOR METAL-TURNING.

A few years ago, coming face to face with this problem, and believing there was a broad field for development in cold metal, I began to experiment. I soon found, that with a very little added expense, I could use my 10-inch swing wood lathes for both wood and metal turning. The extra equipment needed for the metal-turning was one notched face plate, two turning centers, one lathe dog and one chuck for every three lathes. (See Fig. I.)

Lathe tools were made by simply grinding them out of old files; these gave better satisfaction than some I had purchased.

As wood-turning requires a much higher rate of speed than metal-turning, the speed of the lathes had to be altered. This alteration was easily made by putting cone pulleys on the line and drive shafts. With this arrangement the speed could be changed in a few seconds, by merely shifting the belt.

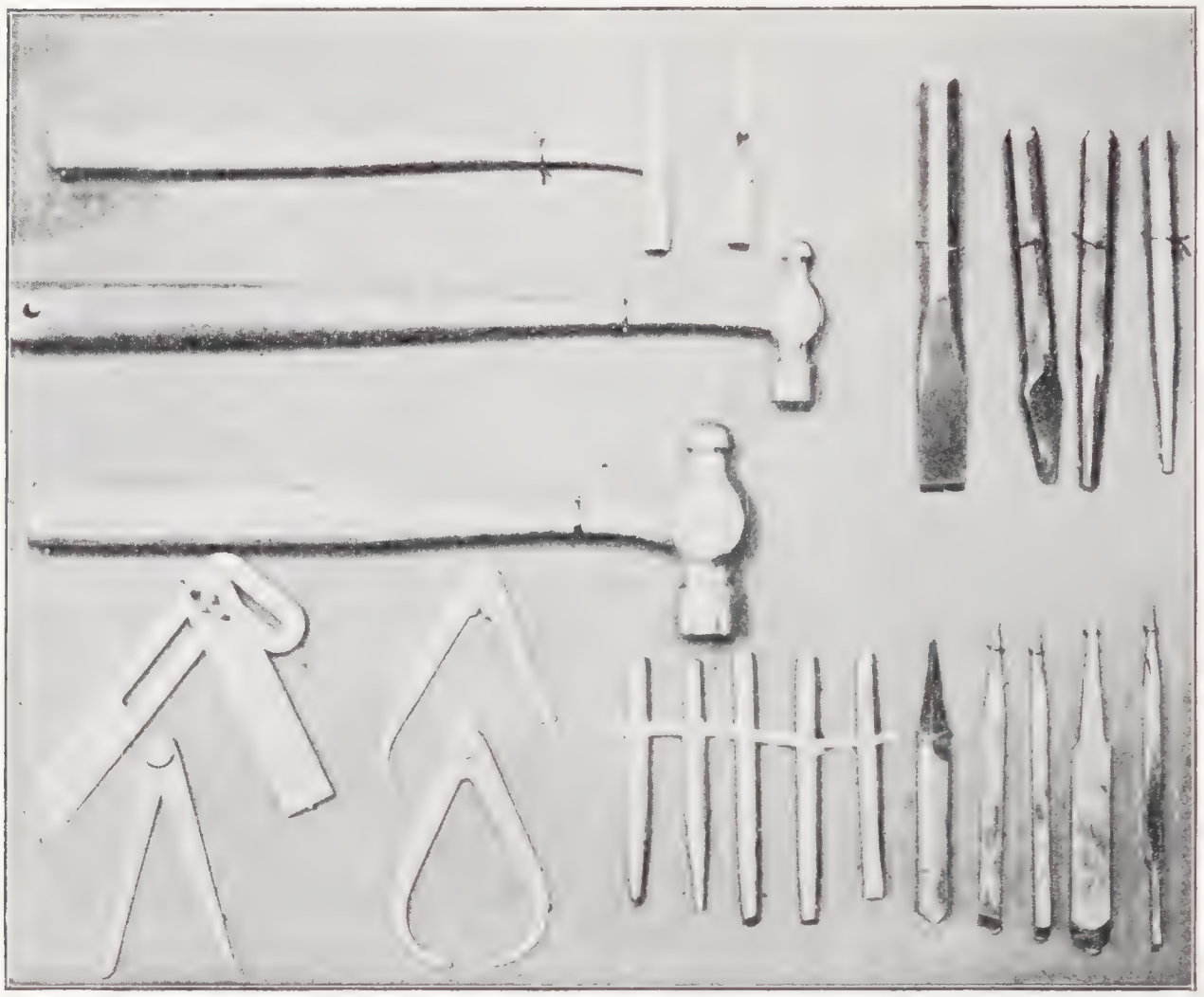


FIG. II. BENCH EQUIPMENT AND TOOLS FOR METAL-TURNING.

Next came the problem of a drill press. This was solved by turning a taper to fit the head stock of the lathe and screwing on a small chuck from a Goodell's hand drill to hold the drills. In a similar manner an old face-plate was attached to the tail-stock, as shown in Fig. I. This gave a very satisfactory drill press.

The metal benches were equipped with vises, a 3″ square, a 6″ steel rule and a few files. Other tools needed, such as hammers, calipers, punches, etc., were made by the students. (See Fig. II.)

With the addition of a power hack-saw, a tool-maker's forge and a water tool-grinder, I had a metal-shop equipment at comparatively small cost, and with it have been able to carry out a course in metalwork with excellent results.

EDITORIAL.

Vocational Training

The last week in November and the first in December, 1906, will long be remembered by the friends of industrial education. During this brief period two great meetings were held which gave voice to feelings that have been slowly developing for a long time. These meetings and the President's message to Congress which followed immediately have focussed attention on vocational training as nothing has done before in a generation.

The first of these meetings was the one held in New York City for the purpose of organizing the National Association for the Promotion of Industrial Education and is reported on pages 103 to 105. The second was the Social Education Congress held in Boston November 30th and December 1st. The Boston meeting was under the auspices of the Social Educational Club of Boston, with the co-operation of twenty-five other educational societies in New England, including the American Institute of Instruction and the state teachers' associations of Massachusetts, New Hampshire and Vermont. The program of addresses was an exceptionally strong one. The aims of this congress were stated as follows:

> In the recent development of education emphasis has been laid on vocational training; but in this as in the purely intellectual teaching the growth of individual capacity and facility has been the chief goal.
>
> The complexities of modern life and society demand, however, that our youth receive a like systematic training for their duties in those civic and social groups in which they are to do their work in life. This Congress aims to draw wider attention to this necessity, to hear the views of eminent specialists regarding this new need, and to bring together all the various forces of the community: the home, the church, the school, business and industry in order to effect a more general realization of the imperative importance of definite social service in every step of education.

At this writing it is too early to report the meeting in detail, but the brief reports at hand indicate a meeting of unusual interest, and point toward far-reaching results.

And now comes President Roosevelt's message in which he points out that industrial education is a matter of national concern:

> "It should be one of our prime objects as a nation, so far as feasible, constantly to work toward putting the mechanic, the wage-worker who works with his hands, on a higher plane of efficiency and reward, so as to increase his effectiveness in the economic world, and the dignity, the remuneration, and the power of his position in the

social world. Unfortunately, at present the effect of some of the work in the public schools is in the exactly opposite direction. If boys and girls are trained merely in literary accomplishments, to the total exclusion of industrial, manual and technical training, the tendency is to unfit them for industrial work and to make them reluctant to go into it, or unfitted to do well if they do go into it. This is a tendency which should be strenuously combated. Our industrial development depends largely upon technical education, including in this term all industrial education, from that which fits a man to be a good mechanic, a good carpenter, or blacksmith, to that which fits a man to do the greatest engineering feat. The skilled mechanic, the skilled workman, can best become such by technical industrial education.

"The far-reaching usefulness of institutes of technology and schools of mines or of engineering is now universally acknowledged, and no less far-reaching is the effect of a good building or mechanical trades school, a textile, or watchmaking, or engraving school. All such training must develop not only manual dexterity but industrial intelligence. In international rivalry this country does not have to fear the competition of pauper labor as much as it has to fear the educated labor of specially trained competitors; and we should have the education of the hand, eye and brain which will fit us to meet such competition."

If the events of these two weeks are as significant as they seem, we are on the very eve of an unprecedented development in industrial education, and it may be that the manual training workers have built better than they knew in preparing the way for the new movement—laying broad foundations upon which to build a great system of industrial education. —*B.*

We must train for living through training for a livelihood.—*President James of the University of Illinois.*

ASSOCIATIONS.

NATIONAL SOCIETY FOR THE PROMOTION OF INDUSTRIAL EDUCATION.

Three months ago a dozen gentlemen held a meeting in New York City to plan the organization of a society to promote industrial education. Early in October they issued a call which resulted in the gathering of some three hundred persons at Cooper Union on the afternoon of November 16th. Among those present were many prominent manufacturers, educators and representatives of labor. Under the direction of Dr. James P. Haney, of New York, who presided, the meeting proceeded promptly to the organization of the society.

Representatives were present from over twenty states, and strong speeches were made advocating the organization of the new society. A constitution was adopted and a strong board of officers and directors was elected. This includes Henry S. Pritchett, president of the Massachusetts Institute of Technology, who was elected president; M. W. Alexander, of the General Electric Co., Lynn, Mass., was elected vice-president, and V. Everit Macy, of New York City, treasurer. Twenty-seven directors were also elected, among those being John Mitchell, Milton P. Higgins of Worcester, James P. Monroe of Boston, Leslie W. Miller of Philadelphia, Jane Addams of Hull House, Chicago, and Fred P. Fish of Boston. The Board of Directors has upon it manufacturers and business men, directors of technical schools and representatives of organized labor.

Immediately following the organization meeting a public gathering was held in the large hall of Cooper Union. Over two thousand persons attended this, the great hall being crowded to the doors. Dr. Nicholas Murray Butler, of Columbia University, presided and in the opening address called attention to the important and far-reaching industrial problems of the day. Said he: "The time has come to determine how much attention should be devoted to the development of skill and to the artistic element in labor, for these two, with the ethical element, make labor valuable. Is it not true that the United States is relying for its prosperity too much on natural resources and too much on the inventive faculty? In the long run we cannot win against highly and systematically trained labor. The old world is and has been pointing every effort to the solution of this problem and success is rewarding the efforts. Some plan must be devised which will make the boy or girl efficient in some calling, to the end that he or she may receive a large reward, and that the standard and tone of industrial life may be raised."

Speaking on "The Competition of the United States in the Markets of the World," Vice-President Frank A. Vanderlip, of the National City Bank, also emphasized the evident lack of technical education in the United States and the tendency to rely too much upon natural resources and inventive ingenuity. The products of the United States are sought abroad because our natural resources and inventive genius in devising labor-saving machinery make it possible to sell them cheaper, and not because of the superior skill of the manual labor involved. But natural resources will in time be diminished. Other countries will copy—in fact, already are copying—

the results of our inventive genius. To maintain our supremacy attention must be directed to securing superior manual skill, or handicraft.

The United States may well profit by the lesson of Germany, which owes its success to its remarkable system of schools. The importance of her trade schools could not be overestimated.

Frederick P. Fish, president of the American Telephone and Telegraph Company, briefly outlined what the industrial school can do for the industries of the United States. Miss Jane Addams treated the general subject of industrial education from the social view point; and Samuel B. Donnelly, secretary of the Building Trades Arbitration Board, explained the meaning of such education to the workingman.

The organization of this society is a significant sign of the times. Manufacturers agree that the solution of the question of industrial education is one that will critically affect our prosperity as a nation. They pointed out the great competition which we already experience at the hands of foreign manufacturers, particularly those in Germany, where industrial education has been developed to a very high degree. At the present time every large city in Germany has continuation schools for her artisans, while some cities, as Munich, have a completely organized system of trade schools. Manufacturers also called attention to the disappearance of the old system of apprenticeship in this country: The old system was individual. Under it the boy learned all the details of his trade. Such apprentices as are now taken into the factory are taught only some special work in connection with the trade. They become mere automatons, performing the same operation over and over again all day long.

Various states have made tentative efforts to develop industrial instruction, and at the present time the recently organized Industrial Commission of Massachusetts is preparing to undertake some radical steps in this direction. Public evening trade schools have been started in New York, Chicago and Springfield, and the city of Columbus, Ga., has organized what it calls an industrial secondary school, where trades are to be taught to pupils of high school age who do not care to take the ordinary high school courses.

All these efforts to solve the problem are only local in their effect. Great interest is expressed in the question of such education, but various manufacturers complain that there is a lack of definite agreement in regard to the lines to be pursued. School authorities are also very hesitant to experiment without more specific knowledge as to methods of procedure. The Society for the Promotion of Industrial Education has been organized to facilitate the study of this whole matter. The purpose of the Society is to propagandize in behalf of industrial teaching, to bring to the attention of both manufacturers and schoolmen all that has been already done, and to point out the steps necessary to the development of industrial schools in any particular field. The Society itself will not undertake the organization of industrial schools but will act as a bureau to which those who are interested in developing such schools may refer.

Promises of hearty support have already been received from several hundred persons who have expressed a desire to become members. President Roosevelt has written a letter in which he heartily commends the organization of the society, and other encouraging letters have been received from Dr. Felix Adler, Andrew Carnegie, President Charles W. Eliot, Jacob Riis, Judge Lindsay, and Dr. Elmer E. Brown, United States Commissioner of Education.

All who are interested in the movement are invited to join the association. The annual dues for active members have been fixed at $2.00. Application blanks may be secured from Prof. Charles R. Richards, who is acting as temporary secretary. He may be addressed at the Teachers College, New York City.

HIGH SCHOOL TEACHERS' ASSOCIATION OF NEW YORK CITY.

The first quarterly meeting of the High School Teachers' Association for the current school year was held on Saturday, November 3rd, at the High School of Commerce. The departmental meetings opened at 10:30; these were followed by a general business meeting in the auditorium at 12:00 o'clock. The section for Mechanic Arts, Charles B. Howe, chairman, was addressed by Eli Pickwick, Jr., supervisor of manual training in the public schools of Newark, N. J. Mr. Pickwick's subject was:

WHAT THE HIGH SCHOOL SHOULD EXPECT THE BOY FROM THE GRAMMAR SCHOOL TO KNOW.

The following gives in outline the points discussed:

If during his course in manual training in the grammar grades a boy has been attentive to instruction given and interested in applying it, on entering the high school he ought to have a working knowledge of typical tools, fundamental processes and common materials as suggested below:

TOOLS.

Rule to measure spaces as small as $\frac{1}{16}''$.
Try-square to lay out work, to test work.
Compasses or dividers to draw arcs.
Gage to draw lines lengthwise of grain.
Hard pencil to lay out work.
Knife to lay out more exact work, like joints.
Plane to use and adjust—smooth and block.
Saws to use—back, cross-cutting and rip.
Chisel to use, to sharpen.
Gouge to use for cutting grooves.
Hammer to drive a nail—nail set.
Screw driver and countersink for setting screws.
Brace and bit—to designate size of bit to bore to depth, to bore through.
File to use, to keep clean, to let alone.
All tools used, to know the name of.

PROCESSES.

Make, mark and use a working corner.
Know the steps taken to make a board of given length, width and thickness.
Detect direction of grain and use this knowledge.
Lay out and bore a hole through a board.
Plane a surface 6″ wide.
Lay out and make a chamfered corner.
Lay out and make a rounded corner.
Make a "butt", "housed", "crosslap" joint.

Should know that it requires more skill to make a clean-cut corner or a smooth surface with a sharp tool than to cut to the finished form with file and sandpaper.

Know how to use sandpaper.

MATERIALS.

Know pine, basswood, whitewood—the growing trees and the commercial products—the general facts about lumbering and milling.

Know iron, steel, copper and brass, the simple facts of mining, reducing and early stages of manufacture.

Know something of the history of typical cutting tools, leading up to the present shape of tool and the dependence of such shape on its characteristic use.

Know how and when to use nails, brads and screws—flat and round head.

MECHANICAL DRAWING.

Measure a simple model, e. g., a box without a cover, and make a dimensioned sketch.

Make a mechanical drawing from the data of the sketch, planning widths of borders and spaces between views.

Make, under direction, any problem to be constructed.

Know the relative positions of top, front, end view, etc., and see the reasonableness and economy of projecting from one view to another whenever possible instead of measuring.

Read at sight the working drawing of a model that needs but two views to express all the facts of form, size and assemblage—(bracket).

Know such simple conventions as "section", "break", and when to use same.

Should have facility in using the T-square and angles for fundamental work in projection.

DESIGN.

Know that use determines form and form dictates the material of construction.

A bowl calls for a plastic medium; a box for a non-plastic.

Adapt material to specific use—longest dimension of problem in wood, lengthwise of the grain.

Make shape fit function. Box—square for handkerchiefs, oblong for ties or gloves.

Distribute material to fit function—balance of weather vane. Make chair legs strong enough to sustain the vertical pressure and brace them to resist any strain other than vertical.

Make and in some simple way apply a design to a construction that invites decoration.

Finish a problem in oil and wax.

MATHEMATICS.

Make from the drawing a bill of the stock needful in the construction of a model.

Plan amount of space to be alloted to each view of a model when drawn on paper of given size.

With common rule, draw to scale of $\frac{1}{2}$, $\frac{1}{4}$ and $\frac{1}{8}$.

Bisect line and angle; construct triangle, hexagon and octagon; find length of circular arcs.

LANGUAGE.

Should be able to describe a simple tool like a chisel.

Tell how to perform a simple mechanical operation such as, How to locate and describe a circular arc of given position and magnitude.

Should tell about a simple process so that another would fully understand.

Should call tools and materials by their names when asking questions in the shop.

Should correctly use simple technical terms.

THE NEW HUGHES HIGH SCHOOL BUILDING
CINCINNATI, OHIO

CURRENT ITEMS

CLINTON S. VANDEUSEN.

PLANS are maturing for the fourth annual meeting of the Illinois Manual Arts Association at Lewis Institute, Chicago, on Friday and Saturday, February 15, 16, 1907. The annual banquet will take place as usual on Friday evening, followed by an address by a speaker to be announced later. The plan of the Friday evening session is to be modified to the extent of having several brief after-dinner talks by members. For the Saturday morning session the executive committee thinks it has prepared the best program the Association has had. P. W. Thomson of the Peoria High School will present a paper on "An Elective Program for High Schools"; Principal F. D. Crawshaw of the Franklin School will give an address, illustrated by stereopticon, on "Manual Training Buildings"; S. L. Smith, of the DeKalb Normal School will present a paper on "The Function of the Manual Arts in Education"; and Charles A. Bennett, Editor of the Manual Training Magazine, will lead a round table discussion. A circular letter containing full information concerning the meeting will be mailed early in January to members of the Association. Others interested may receive a copy upon application to the Secretary, William T. Bawden, Normal, Illinois.

THE Manitoba Manual Arts Association was organized in October with the following officers: President, Mrs. Langford, Art Teacher, Normal School; Vice-President, W. J. Warters, Supt. Manual Training, Winnipeg; Secretary-Treasurer, S. T. Newton, Manual Training Department, Winnipeg; Committee—Miss Thornton, Normal School; Miss Stewert, Collegiate Institute; Miss Aitchison, Supervisor of Art, Winnipeg Schools; H. M. Snell, Department Manual Training, Winnipeg. The Association consists of sixty members, and several interesting discussions have taken place, as follows: Applied Design, S. T. Newton; A Comparison of the Mannal Training Systems in England, Germany and the United States, H. M. Snell; Color Blending, Mrs. Langford; Art in the Schoolroom, Miss Emily Thornton. At each meeting examples of work in the various lines were brought by the teachers and were freely criticised.

NEW YORK University has announced a course of thirty lectures on "Methods of Teaching and Supervision of the Manual Arts" by Dr. James P. Haney. These lectures are given on successive Monday afternoons from 4:45 to 5:45 at the School of Pedagogy, Washington Square. A synopsis of the entire course has been printed for free distribution. Dr. Haney is also giving a course of lessons on "Applied Design" on Saturday mornings at eleven o'clock at the Normal College.

THE new trade school at Philadelphia had its formal opening in what was formerly the Locust Street School. The purpose of this school is to meet the changed conditions due to the rapid disappearance of the apprenticeship system. When entering this school a student chooses the work for which he wishes to fit himself and devotes the greater part of his time to that line of work; when graduated he will be a competent journeyman in that trade. The trades thus far represented are blacksmithing, bricklaying, carpentry, mechanical and architectural drawing, electrical construction, house and sign painting, pattern-making, plumbing, printing, sheet metal work, and steam-fitting.

THE Milwaukee School of Trades started last January with two trades—pattern-making and plumbing—representing the two great classes of trades, the manufacturing and the building. In July Professor Charles F. Perry came from the University of Illinois to take charge of the school, and as a result of his efforts two allied trades—molding and machine work—have been added to the list. It seems certain that this school must have a great future.

BERT. M. LE SUER has left the high school at Schenectady, N. Y., to go to the Boys' High School at Reading, Pa.

F. C. WHITCOMB has left Howard University, Washington, D. C., to take up the work of preparing teachers of manual training and directing the arts and crafts work of Miami University at Oxford, Ohio.

CLIFFORD E. LIVINGSTON, of Huntington, Ind., is to take charge of the manual training at the Winona summer school near Indianapolis.

PLANS are now being considered for the establishment of another manual-training shop in the southern part of Wilkes Barre, Pa., and when this is accomplished it is hoped to extend manual-training work into the grades. At present courses in benchwork, turning, pattern-making and moulding are carried on. The work extends over three years of the high school, and is under the direction of Amos Chamberlain.

CALIFORNIA.

Collected by C. A. Kunou.

AT a recent meeting of the superintendents held at San Diego, resolutions were adopted and a committee appointed to urge upon the legislature the desirability of making manual training a compulsory subject in the schools of the state.

EDWARD HYATT, of Riverside, was recently elected State Superintendent of Public Instruction in California. In Mr. Hyatt's election the manual-training cause has received an impetus, because Mr. Hyatt is a firm believer in manual instruction.

MARK KEPPEL, re-elected superintendent of schools of Los Angeles County, is a champion of manual training. He is a student of educational matters and has always been the friend of manual-training teachers both in granting teachers certificates and promoting the cause of manual training.

THROOP POLYTECHNIC INSTITUTE is doing good work, as usual. Ernest Batchelder, who is at the head of the art department, has returned after a year spent in Europe. He is introducing work in copper, which is creating considerable interest.

DR. E. C. MOORE, the newly elected superintendent of Los Angeles, is an ardent believer in manual training. He believes and advocates good wholesome construction work. The manual-training department, of which C. A. Kunou is supervisor, now consists of twenty-five sloyd rooms, with twenty-five teachers, including the supervisor and his assistant. The following new appointments were made in this department last fall: E. McCanneil, Miss Stella Van Wig, Miss M. Hodge, formerly of Everett, Mass., Miss Julia Sale, Miss Kate Sale, Miss Armintha McMahon, formerly supervising teacher at Redlands. The cardboard construction in second, third and fourth grades involves over 9000 pupils and 200 teachers. Miss Mary Leodyard is in charge of the kindergarten work and most of the first and second grade manual work.

There is also a large and well equipped department of domestic science in the high school and grades, which has been well organized by the supervisor, Miss Florence Stevenson. The work in the high school is given to about 250 pupils and is in charge of two teachers. In the grades about 2200 pupils receive instruction and this work is in charge of twelve teachers.

MANUAL work in the evening schools of Los Angeles is progressing. Miss Lizzie Batchelder is in charge of the evening classes at Olive St. These classes were started this year by Mr. Kunou, who teaches one evening class at Castelar St.

PRINCIPAL S. H. COHN, of the Jefferson school, Stockton, has begun a revival of manual-training work in that city. Manual training was introduced there some years ago but owing to mismanagement was thrown out.

THROUGH the energetic efforts of Supt. J. J. Morgan two branches of manual training have recently been introduced in the schools of Long Beach. Woodwork is provided for the boys of the fifth, sixth, seventh and eighth grades and also in the high school. This work is in charge of Miss Mary Riley of the Clarkson School of Technology, Potsdam, N. Y. Miss Riley is assisted by Mrs. R. Rogers. Sewing is taught the girls of the fifth and sixth grades, while cooking is taught in the seventh and eighth grades and in the high school. This latter work is in charge of Miss Effie Fluker, assisted by Miss N. Ellis.

THROUGH the efforts of Principal Whissler, manual training is now completely inaugurated in the public schools of Venice, Los Angeles County. Miss Jessie Calder is the supervising teacher. Sloyd work in wood is provided for boys in the sixth, seventh and eighth grades. Cardboard work is provided for third and fourth grades. A well-equipped sloyd room is fitted up and before long a cooking room will be added.

SUPERINTENDENT AVERY, of Redlands, deserves much credit for his active interest in manual training, and with the consolidation of the three school districts of Redlands, Lugonia and Crafton, there has followed the introduction of manual training to a greater extent than heretofore. The work, in its varlous forms, is given to all pupils in the elementary grades—some 1400 in number. In the first and second grades, the course includes clay-modeling—forms based on the cube, sphere, cylinder and natural objects, such as apple, pear, etc.; weaving of paper strips; paper folding and construction; the weaving of raphia into hammocks, rugs, pocketbooks, etc., and the making of reed mats and baskets.

In the third and fourth grades, reed baskets are woven, also Indian baskets, introducing simple designs. Considerable time is devoted to construction work, using cardboard of various colors. Accuracy in measuring to eighth inches is insisted on. Considerable attention is to be given to the decoration of the work. Miss Hughes, the supervisor of drawing, is now devising a course in spot design for these grades.

From the fifth to the eighth grades, the boys are given woodwork, and the girls sewing. In the woodwork, lumber of a fixed thickness is used in the fifth and sixth grades. As skill is developed, lining and simple chip carving will be employed in decoration. Objects are oiled or stained. As new tools are introduced, their proper use is explained.

In the seventh grade, the dressing of lumber is part of the work. One or two models, involving the use of simple butt joints are given. When desirable, chip and

simple relief carving are employed in decoration. Greater attention is now given to drawing, instruction being given in the use of blue prints and drawing to scale. The care and sharpening of tools is taught.

In the eighth grade, the work begun in the seventh is continued. Greater care in finishing articles is required. Models using mitre, dovetail and lapped joints are in the course. Short talks on the growth of trees, the cuttiug and preparation of lumber will be given at intervals during the year. Each pupil on completion of the regular course, will be allowed to make, with the consent of the instructor, an original piece of work. Originality in design will be encouraged.

Sewing was introduced this year and is carried on in the four upper grades. The course as outlined for this department consists of the making of models illustrating the various stitches and their application in plain hand sewing. The first half of this year, the work is not differentiated and all classes are beginning the simplest models. The second half of the year, the pupils of the fifth and sixth grades will continue the model work and also make a few practical articles, such as bags and aprons. The seventh and eighth grades will take up garment making. The pupils keep notebooks and take down such notes as the instructor may dictate. The pupils of all grades will make simple Christmas gifts.

It is now planned to introduce cooking next year in the seventh grade and continue it in the eighth. If this plan is carried out, sewing will be taught in the fifth and sixth grades, garment making being begun in the second half of the sixth year. The aim of the domestic science department is to be as practical as possible and affiliate closely with the home.

In the four upper grades, one period a week, ranging from an hour to an hour and a half, is given to manual work. In the lower grades, the period is considerably shortened and the frequency of the lessons increased.

W. B. Givens has charge of the manual-training work and Miss A. B. Campbell of the sewing. Mr. Givens received his instruction in manual work at the Colorado State Manual School, and was for four years teacher of this work in the New Mexico Normal School at Las Vegas. Miss Campbell graduated from the Thomas Normal Training School of Detroit, and last year taught domestic science at Riverside, Illinois.

MINNESOTA.

THAT interest in manual training is increasing throughout the state is evidenced by the fact that a Manual Arts Department of the Minnesota Educational Association has recently been organized and an interesting program was carried out at the annual meeting which was held in Minneapolis during the holiday season. A feature of the program was an address by Geo. F. James, Dean of the College of Education, of the University of Minnesota, on "The Demands of Modern Civilization for Instruction in the Manual Arts".

MINNEAPOLIS is to have another (the fifth) high school. The foundation is well under way and it is hoped that the building will be ready for occupancy by next September. The manual-training department at this building is to be well provided for. There will be a woodworking shop $30' \times 38'$, a wood-turning and pattern-making shop $30' \times 38'$, a space $31' \times 51'$ which will be divided between a machine shop and a forge shop, a freehand drawing room $27' \times 30'$ and a mechanical drawing room $24' \times 34'$ with a classroom $16' \times 24'$ to be used for demonstration pur-

poses. There will also be a good-sized finishing room in which all staining, varnishing, etc., can be done free from dust and cold blasts. Ample provision is also made for storage of lumber and other supplies.

This is the first step toward the introduction of forging in the manual-training course. The down draft system of forges is to be used and the shop will be up-to-date in every particular. The machinery in the wood-turning and pattern shop is to be driven from a system of shafting beneath the floor and there will be no over head belting. Every effort will be made to eliminate dust and noise as far as possible. The plans are not yet completed but a thoroughly up to date equipment will be installed throughout.

THE following changes have taken place this year in the force of manual-training teachers at Minneapolis: Jas. E. Garvey, who for ten years has been in charge of the machine work in the Central High School, has accepted a more promising position at Oak Park, Ill. This vacancy was filled by the appointment of B. W. Baker. De Cloise Glasby, who has been connected with the work at the North High School since its organization in 1888, declined a reappointment in order to look after his farming and lumber interests in Texas; Thomas W. Brown, of the same school, resigned to accept a position in Hartford, Conn.; R. M. Albright, who was in charge of the machine work in the East High School, resigned on account of ill health. These three vacancies were filled by the promotion of Orin A. Ringwalt, T. W. Breckheimer and R. L. Southworth from the grade schools. The vacancies in the grade schools caused by these promotions have been filled by the appointment of L. A. Herr, of Vincennes, Ind., John P. Granner, of Constableville, N. Y., and Merton R. Libby, of Boston, Mass.

J. H. SANDT, formerly of Vineland, N. J., is now in charge of the manual-training department of the Winona State Normal School.

THE Handicraft Guild, of Minneapolis, announces Harry S. Michie of Pratt Institute, and the Camberwell School of Arts and Crafts, London, England, as instructor in design, metal-work, wood-carving and stenciling, also Mrs. Ida Pell Conklin of Pratt Institute, as instructor in handwrought jewelery, including stone setting, etching and chasing.

AUSTIN has equipped a shop with twenty complete outfits of benches, tools and the necessary instruments for mechanical drawing. The work is being given to boys of the sixth, seventh and eighth grades, also in the high school. No provision has yet been made for the girls but it is hoped to provide courses for them in the near future. It is proposed to add to the work from year to year until a full four year high school course is provided.

TEXAS.

AT THE annual meeting of the State Teachers Association held during Christmas week, manual training received its full share of attention. Several of the leading manual-training people of the state took part and considerable interest was manifested in the work.

MANUAL TRAINING is being extended in Austin by the introduction of the work in two more of the grades. In the high school, laundry and millinery work have been added to the course for girls. Interest in the work is all that could be wished for and it is probable that more teachers will be needed before the end of the year.

PARIS High School is just entering its new building. The manual-training work is in charge of Ferdie Kreisle.

HOUSTON has made a good start in manual training. The board appropriated $5,000 for the first year. Mr. W. C. Curtis, formerly a teacher in the Austin manual-training department, is in charge of the work. Only work for the boys has been introduced this year.

ADOLPH UHR has been appointed supervisor of manual training at San Antonio, Texas, to succeed Mr. Shumway, who died of diphtheria early in November.

ILLINOIS.

SEVERAL Illinois cities and towns are putting in manual training this year or increasing the facilities for work previously introduced. Among the former may be mentioned Decatur, and among the latter Springfield. For several years the Springfield high school has given courses in manual training but this year work is being taken up by several of the grammar school principals. Encouraged by Superintendent Anderson, seven of the principals took courses in summer schools and now four of them have well-equipped shops in their schools and are doing good work. It is probable that by next year this number will be doubled. The work in the Teachers' Training School also has received a new impulse by the return of Mary Alice Wright who has been spending a year at Bradley Institute. Peoria, also, is moving forward; plans are now complete for a large manual training high school. When this is built it will be one of the best in the Central states.

T. L. ADAMS has left the Bloomington high school to take a better position at Evanston. He has been succeeded by Eldon L. Usry, of the Des Moines high school. Mr. Usry took his M. E. degree at Ames, Ia. L. R. Abbott, formerly of Moline, is now director of manual training in the public schools of Grand Rapids, Michigan.

ONCE a year the University of Illinois invites the high school teachers of the state to a conference. The meeting this year was held Nov. 22 and 24. Three groups of subjects were considered: social science, agriculture, and manual arts. In the latter, a course in manual training for high schools was presented by Charles A. Bennett, of Bradley Institute, and discussed by Louis H. Burch, of the Macomb Normal School. . A course in drawing was outlined by Professor E. J. Lake, of the University, and discussed by Mary E. Chamberlain, of the De Kalb Normal School. The aim of the conference is to make clear the difference between courses acceptable for advanced credit and those appropriate for entrance credit in the manual arts, and to prepare a syllabus of the latter. To continue the work toward this end the following committee was appointed: Charles A. Bennett, Bradley Institute; Supt. F. U. White, Galva; J. H. Gill, the University; C. C. French, La Salle Township High School; George W. Eggers, Chicago Normal School.

CLEVELAND.

CLEVELAND has a flourishing manual-training club not before mentioned in the MANUAL TRAINING MAGAZINE. The membership is limited to men teachers of Cleveland and vicinity and its brief constitution calls for four meetings each year. The first meeting of its second year was held October 16th. Supper was served at six

o'clock, followed by the annual business meeting and the topic of the evening, "Metal Work in High Schools." The officers elected for the ensuing year were Warren E. Hicks, president; George A. Seaton, secretary; De Lancey Corlett, treasurer. The secretary reported a membership of thirty-two.

MISS CLARA CURTIS TOWNSEND, formerly of Indianapolis, was appointed assistant supervisor of manual training at the opening of schools in September. Miss Townsend's particular charge is knifework and sewing in the fifth and sixth grades.

OTHER new manual-training workers are Elmer E. Ilgenfritz, formerly of Schwab Manual Training School, Homestead, Pa., woodwork, Central High School; H. A. Carrithers, Saunemin, Ill., forging, Central High School; Albert Polscher, Toledo, woodwork, Glenville High School and seventh and eighth grades; Edward Lemmerman, Cleveland, woodwork, South High School.

LAKEWOOD, a rapidly growing suburb of Cleveland, is developing an excellent manual-training system. Woodwork and drawing were introduced into the high school and eighth grades in September, 1905; a grade building adjacent to the new high school is being remodeled for the exculsive use of the manual-training department; an excellent equipment for wood-turning has just been installed and departments for forge and machine work will be added as they are needed. The work is under the direction of S. O. Champion.

BUFFALO.

THE question of a new technical high school is now receiving considerable attention. Members of the Chamber of Commerce and of the Business Men's Associations are agitating the matter with a view to securing as a site for such a school the ground occupied by one of the National Guard regiments, which will soon be vacated. It is proposed to build on this site, which is centrally located, one of the finest technical schools in the country. The present technical high school which was opened only two years ago is filled to overflowing. Every basement room —even the available space in the engine and boiler rooms has been fitted up to accommodate students.

A BUILDING exculsively for cooking and shopwork has been erected on the grounds of public school No. 18, and was opened for work this fall. This makes twenty-three fully equipped centers for grade work in manual training.

MANUAL TRAINING IN VERMONT.

During the past summer Vermont made a start which is expected to prove but the first step in a campaign toward introducing manual training and agriculture into the schools of the state.

The credit for inaugurating the movement is due to some of the citizens of Woodstock, who believe in the value of manual training to the child of the town and country as well as the city. It was due to their efforts and public spirit that the plan for holding a vacation manual-training school for the children of Woodstock and vicinity, was carried through. Benches and equipment for classes of twenty were provided and installed on the second floor of an old unused building in the center of town. It is interesting to note that in the former days of water-power this venerable structure had been used as a woodworking establishment, the hand-hewn floor timbers showing the marks of the ax.

CLASSES FOR CHILDREN.

The classes and program were arranged to accomodate four groups of pupils: (1) boys and girls from five to nine years of age, (2) boys from nine to eleven, (3) boys from eleven to sixteen. (4) girls from eleven to sixteen. The program was arranged so that the younger children came in the forenoon; this relieved the mothers of their care during the busiest part of the day. The older girls' classes met in the afternoon so as not to interfere with household duties in the forenoon, and the older boys came late in the afternoon when odd jobs were usually out of the way. Extra time was provided when pupils who were prevented from attending during the regular class time, could make up time or do additional work. Experience proved that consideration of such facts in arranging the program was appreciated, especially by such of the pupils as had definite duties. "Haying" is an important summer industry, dependent on the weather, and flexibility in the program made it possible for many of the boys to attend without loss of time. There were enrolled in the various day classes 118 pupils and the attendance was very good.

A fixed course of models was avoided, only a few preliminary models being introduced at the beginning, after which individual work was selected by each pupil according to his ability and need. In this way a great variety of things was made, the pupils gladly paying the additional expense for the larger projects. Book-shelves, taborets and plant stands, sewing screens, and tables were some of the more pretentious pieces. A very creditable writing desk in mission style was made by one of the older girls.

A CARPENTRY CLUB.

An evening class was also organized. This was planned more as a "Carpentry Club" than a class. There were two elements considered in this group. The first element was the young man of settled occupation and steady habits who had already developed quite an interest in constructing craftsman furniture, and who enjoyed an evening with tools, much as some men would a game of billiards. With these as a nucleus it was planned to interest others of less settled habits, and perhaps somewhat younger in years, whose occupation in life was not fully determined. It was found that they gained much by associating with each other. Many ladies also joined the class; several of the merchants took an interest and pleasure in handling tools. While a great number of ladies and older people left less room for the younger element with unsettled habits, which it was desired to reach, yet it was fully as important to get the influential citizens interested and familiar with the work. They will be a valuable factor in favor of manual training when it is desired to introduce it into the schools.

A FARM BOYS' CLASS.

A "farm boys" class was also organized for one-half day in the week. These pupils, shy, slow but sturdy, showed the influence of isolated lives on the farm. Their shyness, at times, was almost pathetic. It meant much to them to merely meet others once a week. Two or three pupils came fourteen miles from up in the hills. A day was selected which suited the majority, though many admitted "the days were all alike"—one just about as busy as another. The few talks I had with the parents of these farm boys convinced me more than ever that the farmer is in favor of manual training in the rural schools. They all expressed the hope that the school would be continued next summer and promised to send their boys. This means much, when it is considered that the summer is the busy season on the farm.

A few of the bulletins from the Department of Agriculture were placed where the boys could use them and take them home. It was surprising to note that they were ignorant of them, and also gratifying to see with what eagerness they read them and the joy with which they learned that they were to be had for the asking. Might not country school teachers more generally make use of much of this good material?

The influence upon some of the boys of working in an orderly shop, where tools were well cared for, was evidenced by the reports of some of the boys who were fitting up workshops on the farm. One boy had made it a rule to "fine" any member of his household five cents for each misplaced tool, the money to be used for the purchase of new tools.

The work of this farm boys' class was made as practical as possible. Household articles were prominent. Many workshop and farm appliances were made, such as bench-hooks, plumb bobs, levels for setting fences and tool chests.

A TEACHERS' CLASS.

State Superintendent Mason S. Stone is a firm believer in manual training and agriculture in the schools—manual training and agriculture in the village and consolidated schools, and agriculture and manual training in the country schools, is the way he arranges the subjects. The state allows summer institutes of two weeks to be held in various parts of the state. Here was an opportunity to give teachers a short course in manual training and a chance to observe children's classes at work. So a "Summer Outing and School of Industrial Education" was organized and circulars sent to teachers in different sections of the state. The expense to the teachers was lessened considerably by serving meals at a "commons" which was established on the fair grounds where the instruction was given.

The time of the teachers was equally divided between agriculture, nature study and manual training. The Billings estate, which is one of the best in the state of Vermont, was placed at the disposal of the teachers for purposes of instruction in agriculture. Lectures were given on dairy cattle, sheep, swine, oxen, and draft and road horses by an expert of the State Board of Agriculture. Bees, forestry, clovers, grains, etc., were studied in field trips under the direction of an expert on farming. Lectures were also given by members of the faculty of the University of Vermont. In manual training the possibilities of its relation to school work were considered, and work in cord, raffia, basketry and thin wood was given. Great enthusiasm was shown, and material was supplied to many of the teachers to make a start with their classes.

There were about twenty-five teachers present from various parts of the state, including graded and district school teachers, several principals and one superintendent. There were also several representatives of the "grange," an organization which has at heart the interests of the farmer.

Thus a beginning has been made. The retiring Governor Bell has spoken favorable words for manual training in his farewell message. Governor Proctor, his successor, mentioned the need of manual training in the schools, when he accepted his nomination. With the interest of the press and public-spirited citizens throughout the state, the outlook is indeed favorable.

L. W. WAHLSTROM,
Ethical Culture School, New York City.

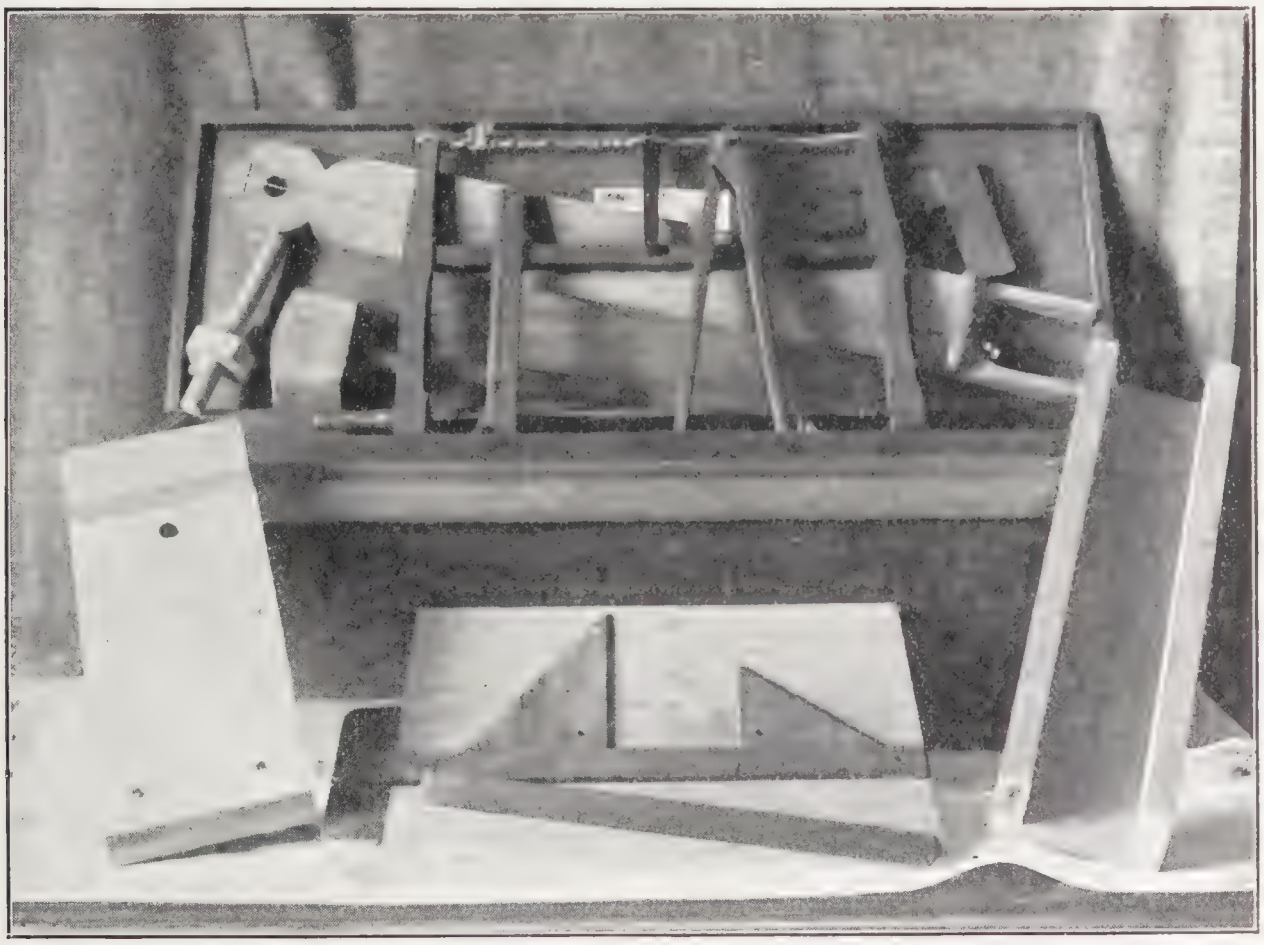
TECHNICAL SCHOOLS FOR CANADA.

At a recent dinner given in Montreal by the Canadian Manufacturers' Association to their retiring president, Mr. Ballantyne, Premier Gouin, of Quebec, responded to the toast, "Provincial Legislatures." After paying a glowing tribute to Mr. Ballantyne, Mr. Gouin said that he had noticed with pleasure the interest which the Association took in mechanical schools. He went on to speak of the need of establishing such schools thruout the dominion.

"I acknowledge—we all acknowledge, the necessity of the immediate development of such schools in our province and the whole country."

After speaking of the remarkable development of these schools in Germany and Belgium he gave the following figures as indicative of the effects of this branch of education.

"During the last fifteen years," he continued, "British exports have increased twenty-six per cent. and those of France twenty-seven per cent., while those of Belgium, the country in which commercial education is exuberant, have mounted to fifty-two per cent., and those of Germany, the country 'par excellence' of education, to seventy-one per cent." —*School Journal.*



FROM PUBLIC SCHOOLS, DENVER, COLORADO. DRAWING SET MADE BY SIXTH-GRADE PUPILS, TOOLS BY SEVENTH GRADE, CHEST BY EIGHTH GRADE.

BREVITIES.

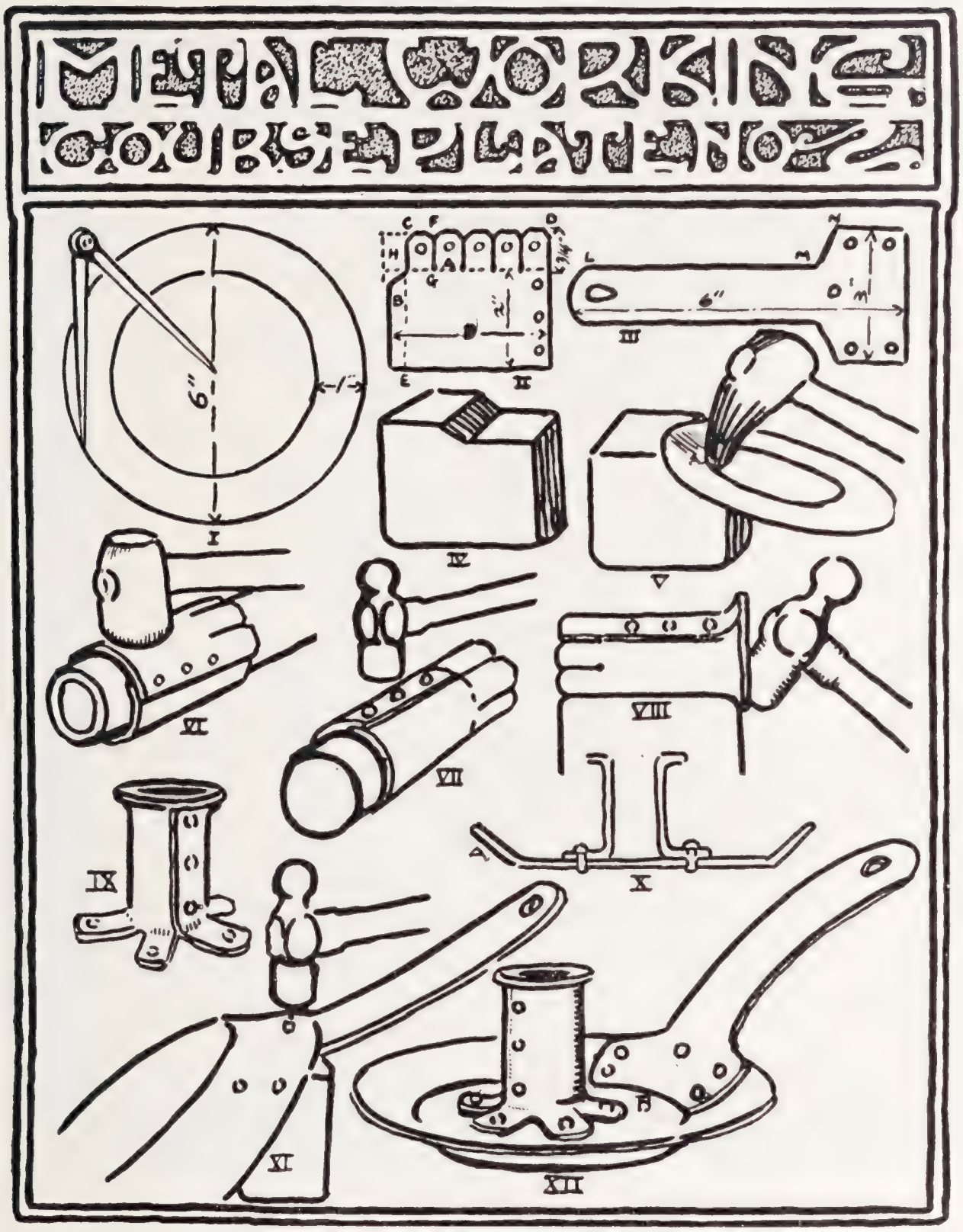
ALONG with the usual crop of college and high school annuals, with their painful attempts at the artistic, it is most refreshing to receive a copy of the 1906 annual publication of the Shortridge High School of Indianapolis. From beginning to end the book reflects credit upon the students who served on the board of editors, and especially upon the inspiring force behind it all—Miss Roda E. Selleck, who is in charge of the art work in that school. On page 120 we reproduce a border from this annual and on pages 70, 82, 88 and 98 four of the tailpieces.

SEVERAL months ago we received a communication from Theodore W. Breckheimer, of Minneapolis, in which he said some very good things about the time when finished work should be returned to the pupils. "There is but one time," says Mr. Breckheimer, and that is "the very day the model is completed." At no other time is the model of so great value to the pupil; at no other time is the pupil so much interested in it; at no other time is the model capable of doing so much missionary work for the school. We need to have exhibitions (at least we think we do) but do we realize how much the well-constructed model will do for the school if sent out at the time when it will be accompanied by the story of its construction enthusiastically told by its maker. We know no better advocate of manual training than the boys themselves among their admiring parents and friends.

IT has often seemed to me that manual training schools were terribly lacking in imagination or ideals, and that the result is either lack of enthusiasm or conceit. It does little or no harm to young people to do work, however crude, if only they have opportunity to see what good work of the kind is, and to measure themselves by it. Each manual training school should have a little museum of specimens, if possible.

—Ellen G. Starr, Bookbinder, Hull House, Chicago.

THE School of Printing in Boston is sending out some tiny, but very interesting booklets. From one entitled "Technical Education" we quote the following by Professor T. H. Huxley: By technical education is usually understood that instruction which is necessary and is especially intended to assist in training for some particular industry, trade, handicraft, or art. Technical education, however, should not be understood to consist solely of instruction in the handicrafts or arts, but rather the education necessary to enable a boy to become an intelligent workman—one who can see the principles underlying the methods of work—one who can give a reason for doing anything in a certain way and does not blindly follow a certain rule he was so taught; in fact, he should know something of the science of his art, for every art is based upon certain scientific principles. The practice of but very few arts can be taught except in the workshop, but the principles of most arts can be taught either before the young artisan enters the workshop as an apprentice or during the period of his apprenticeship. No system of technical instruction or class teaching can supersede, render unnecessary, or replace the training of eye and hand which is acquired by actual work in the workshop. The kind of education or training desirable for anyone wishing to learn a handicraft would consist of: first, a good elementary education, i. e. that besides reading, writing, etc., the aspirant should be so trained as to have his understanding fully awakened, so that he should take a real interest in his adopted pursuit; secondly he should have acquaintance with the elements of physical science



FROM ONE OF THE PLATES OF DESIGNS SENT OUT BY THE GRAND RAPIDS SCHOOL OF APPLIED ARTS.

THE 20TH CENTURY KING.

No spider preying on his kind,
An idler and a parasite;
No autocrat of people blind.
Ruling his slaves by right of might.

No plaything of a by-gone age.
A picture pleasing to the eye,
Strutting for one brief hour the stage,
A foolish, useless butterfly.

But one whose hand is brown with toil,
Whose face is tanned by wind and sun;
Who beautifies and tills the soil,
Whose crown by right divine is won.

A toiler, not a useless drone,
In the world's busy line of men;
His sceptre is a tool, his throne
A symbol, and his sword a pen.

He wears a laurel wreath for crown,
And throughout all the land men sing
His good deeds, praises and renown—
The Twentieth Century King.

—*Henry Coyle.*

REVIEWS

Copper Work. By Augustus F. Rose, of the Providence Technical High School. The Davis Press, Worcester, Mass., 1906, 6×9 in; pp. 118, richly illustrated; price, $1.50.

This book is just what teachers and art-craft workers have been in need of ever since copper work began to receive attention as a form of artistic handicraft suitable for schools. The book describes in detail the processes of copper work and presents a great variety of designs. Mr. Rose has done more than most other teachers to adapt work in copper to school conditions, and his book contains a large number of simple pieces which can be made by beginners. On the other hand, it does not omit the more difficult pieces of raised work, and even devotes one chapter to enameling. The illustrations, from both line drawings and photographs, are numerous and excellent in quality. Representing the best technique and a high standard of book-making, Copper Work will be heartily welcomed by many teachers. —*B.*

Elementary Woodwork. By Frank H. Selden, University of Chicago. Rand, McNally & Company, 1906, 6⅞ by 5 in.; pp. 206, over 200 illustrations; price $1.00

High School Manual Training Course in Woodwork. By Samuel E. Ritchey, Crane Manual Training High School, Chicago. American Book Company, 1906, 7 by 8¾ in.; pp. 223, 372 illustrations; price $1.50.

These two books differ in scope and in the quantity of details presented and yet have enough in common to warrant their being reviewed together. Each is the result of an attempt by the author, a shop teacher, to commit to written and illustrated pages the subject-matter of the course he wishes his pupils to accomplish. Each attempts by means of text and illustration to set before the pupil correct tool practice in a few selected exercises in woodwork. These books do not represent the first attempts of their kind, consequently one does not expect to find subject-matter wholly new. Either book may be used to advantage as a reference text by the teacher who does not care to follow the course as outlined.

Mr. Selden's book devotes seven pages to an introduction, then ninety-seven pages to Part I., consisting of twenty-seven lessons on such exercises as: bench-hook, halved corner, dovetail, mortise-and-tenon joint, etc. The first five lessons, sixteen pages, with sixteen half-tone reproductions of photographs showing positions of hands, tools, etc., are as follows: Truing the first suiface of a piece of wood, planing an edge at right angles to a surface, use of gage, finishing the third side, and finishing the fourth side. Part II. contains fifteen supplementary lessons, thirty-five pages, on: Getting out stock, dowel joint, glue joint, etc. Part III. contains seventy pages of descriptions of tools and their uses and various materials used in the shop. Most of the photographic reproductions are well executed and illustrate clearly the points they are intended to; the working drawings are moderately well done—not the best we have seen by any means; the printing and general make-up are very good.

Mr. Ritchey's book opens with a chapter on equipment, giving a detailed list of high school equipment with prices and supplies for one year for seventy-two pupils.

Chapter two is an outline or syllabus of the course in shopwork for the first year of the high school as elaborated in the book. Then follow two chapters, twenty pages, dealing with trees and their leaf and fruit forms, and the properties of wood. The chapter on Carpentry describes the tools used, their care, use, adjustment, and sharpening. The first exercise is a book-rack with rectangular uprights gained into the bottom $\frac{1}{8}$ in. deep and screwed. Other exercises are: box, hat-rack, and a series of joints. Thirty-three pages are next devoted to a very successful presentation of the fundamental exercises in wood-turning, followed by several projects. The chapter on cabinet-making, fifty-four pages, takes up a number of problems in construction: boxes, taborets, hand mirrors, frames, etc. Some of the designs are certain to be criticized as being too mechanical. In this chapter are presented several projects in which a horizontal member pierces a vertical member with a wedged mortise-and-tenon joint. "The bottom shelf . . . . . may be tenoned and driven thru mortises in the end pieces and wedged; or it may be cut the exact length . . . . . between end pieces, and screwed on with flat-headed screws through the ends. The projecting ends and wedges are then made separately, and glued and nailed on. This is the usual way of making 'Old Mission' furniture, with projecting tenons and wedges." This sort of teaching will hardly find favor in the eyes of the readers of this Magazine. Your true craftsman will not want to hand this chapter to his boys until he has "glued" together pages 140–147. The last two chapters, forty-four pages, deal with methods of molding, and pattern-making, respectively. Each chapter of the book is followed by a set of suggestive test questions, and at the close of the book are thirteen pages of indexes, making all of the material easily available. The working drawings are usually clear and fairly well executed though in almost all of them the lettering could be improved to advantage. The freehand sketches are not as good as some we have seen in recent publications of this class.

Illinois State Normal University. WILLIAM T. BAWDEN.

A Manual of Carpentry and Joinery. By J. W. Riley of the Municipal Technical School. Rochdale, England. Published by Macmillan & Co., London, 1905, 5x7$\frac{1}{4}$ in., pp 500; 923 illustrations; price

The first four chapters are devoted to a very practical consideration of the structure, preparation, qualities and care of timber; the fundamental principles of both plane and solid geometry and the application of these and other principles to problems of mensuration. The next two chapters are descriptive of woodworking tools and machinery. Chapter seven gives a detailed description of joints and fastenings, and the three chapters following are devoted to the application of joints and fastenings to building construction, including floors, partitions and roofs. The matter on roof trussing is especially valuable. Chapter eleven is devoted to a good discussion of such miscellaneous problems in carpentry as scaffolds, shoring, spectator's stands, etc., while chapter twelve deals with mechanics of carpentry. The remainder of the book is devoted mainly to what in this country would be called interior finishing, such as the framing and arrangement of doors, windows, stairs, casings, etc. Some of the methods employed are not common in this country but will offer suggestions to Americans.

The book is written by an Englishman to meet conditions in his own country. It is therefore quite natural that he should use some terms and deal with some prob-

lems that are not met with in this country, but carpenters with some experience and students in our technical schools will find this a very valuable book for reference.

C. S. VANDEUSEN.

Elementary Sloyd and Whittling. By Gustaf Larsson, principal of Sloyd Training School, Boston. Published by Silver, Burdett, & Co., Boston, 1906. 6×7½ in.; pp. 97; price, 75 cents.

All who are interested in the solution of the problem of manual training for boys of the fifth and sixth grades will be interested in this book. Mr. Larson does not present the book as the only or the final solution of the problem; on the contrary he says, "Although the models and directions here outlined have been planned with great care, it must be understood that they are not recommended as a fixed and unalterable plan of work. Teachers should always change the methods and models in the interest of general improvement or adapt them for special needs." Accepted in this spirit, it is without doubt the best book on the type of work it represents. It gives good working drawings of twenty-two models in elementary benchwork and of twenty models in whittling; the steps in the process of construction of each are also given. To these are added brief chapters on woods, tools, staining and polishing, and general working directions. The tool processes are not described and illustrated in detail, but the book is easily read by anyone who has pursued an elementary course in woodwork. —*B.*

Pencil Sketching from Nature. By James Parton Haney. Published by The Davis Press, Worcester, Mass., 1906; 6×9 in.; pp. 32; paper cover. Price, 50 cents.

From every point of view this is a choice booklet. Neatly bound, well printed on good paper, and beautifully illustrated, it is pleasing to look upon. Brief, but comprehensive in statement, touching upon the vital points in the art, it gives the suggestions many teachers and art students are looking for. But best of all, and what is too rare in books of instruction, the plates are excellent illustrations of the art of pencil sketching, they are not pen drawings or wash drawings done over in pencil, but they are distinctly pencil sketches. Three of these in particular impress one: an old doorway at Granada, a purely architectural subject; "a little note made at Ronda" combining architectural and foliage masses; and the frontispiece, "The Clouds Over the Meadow", a delightful atmospheric sketch made at Newburyport, Mass.

—*B.*

Lady Hollyhock and Her Friends. By Margaret Coulson Walker, with drawings by Mary Isabel Hunt. The Baker & Tavlor Co., New York, 1906, 7×9 in; pp. 154+72 plates, some of them in colors.

This book suggests, chiefly by its illustrations, how a child may make a great variety of playthings out of the commonest kinds of material found about the home —corn cobs, corn husks, clay, vegetables, fruit, flowers, straw, leaves, burs, nuts, etc. Nearly every one is a representation of animal life. Each is given a name and described in the play spirit. The aim of the book is to "aid parents in furnishing not only entertainment but profitable employment as well, for their little ones." The book will surely interest many teachers of primary grades. —*B.*

Induction Coils. How to Make and Use Them. By Percival Marshall. Revised by Kurt Stoye for American use. Spon & Chamberlain, New York, 1906, 7¼ × 5 in.; pp. 70; 35 illustrations; price 25 cents in paper covers.

A small book making clear the principle on which the induction coil acts and giving directions for making coils of various sizes and for various purposes. The book is not attractive in make-up but the material it contains will be of value to those interested in the subject.

C. S. VAN DEUSEN.

The following have been received:

Course of Study for the Manual Training Schools, Cincinnati, Ohio. An eight-page outline of the course in woodworking for the seventh and eighth grades and the first year of the high school.

Course of Study in Domestic Science, Cincinnati, Ohio. A 51-page booklet giving the course in food-work in detail, including recipes.

Technical Education in Relation to Industrial Development, by Charles G. Washburn. A comprehensive address given at the commencement exercises of the Worcester Polytechnic Institute by the president of the Corporation. Reprinted from the Journal of the Worcester Polytechnic Institute for July, 1906.

The Education of the Dullard in the Public Schools, by James P. Haney, M. D. Reprinted from the June number of Annals of Gynecology and Pediatry, Boston, 1906.

Teaching the Rudiments of Cooking in the Classroom. Primary Methods and Outlines for the use of Teachers in the Indian Schools, Estelle Reel, Superintendent. Government Printing Office, Washington.

Proceedings of the New York Convention of the Eastern Art Teachers' Association and the Eastern Manual Training Association. Prepared under the direction of William Noyes, of Teachers College. A fine report—contains several excellent papers.

The Educational Bi-Monthly. Edited by Ella Flagg Young and her assistants. Published by the Chicago Normal School. This bids fair to become one of the very choicest educational journals in America. Vol. I., No. 1, October, 1906, opens with a stimulating article on "Culture and Industry in Education," by Professor John Dewey. This is followed by a dozen others, all dealing with dynamic factors in education. In fact, the volume is essentially a symposium on dynamic pedagogy.

The Madison Public Schools. This report by Superintendent R. B. Dudgeon, of Madison, Wis., is one of more than usual interest. Not only does it present matter of interest pertaining to the manual arts, but it contains a valuable discussion of the subject of "Individual Instruction."

The Hackley Manual Training School and Gymnasium. This announcement contains over forty excellent half-tones illustrating the different phases of the work in this admirably-equipped school.

Announcement of the School of Education, University of Illinois. This is the prospectus of the new school of which Professor Edwin G. Dexter is the director.

Report of Cleveland Public Schools, 1905. This report contains floor plans, two interior and one exterior view of the West High Manual Training School. It also contains a table summarizing the cost of the manual training in Cleveland.

VOLUME VIII NUMBER 3

MANUAL TRAINING MAGAZINE

APRIL, 1907

THE PROBLEMS OF INDUSTRIAL EDUCATION.[1]

CHARLES R. RICHARDS.

WHILE it is not the intention of the speaker to go into any extended analysis of the reasons why the problem of industrial education confronts us so seriously at the present time, it may be well to look briefly at some of the elements in the case in order to gain a better understanding of the whole situation.

The fundamental reason why this question of trade training faces us today in such severe form and why the lack of skilled workman is felt so keenly in many high grade industries is that the present basis of our industrial organization presents no natural place for such training. The very form of the organization is opposed to such training and any provision for real instruction of learners must be made in spite of this fact and outside the direct conduct of the business for which the organization is established.

We speak of the apprenticeship system as if it were a system that were just going into disuse; as if in the good old times but a generation ago it were flourishing and adequate to meet all demands for industrial training while as a matter of fact the apprenticeship system, in any full sense has never been adequate or effective since the capitalistic organization of industry became general. Some of its forms have to be sure, survived even to the present day, but except in the cases where new and distinct provisions have been developed for teaching the apprentices, its efficiency has long disappeared and its original place in the industrial order been lost.

[1]Opening address of the chairman of the Industrial Education Section of the Social Education Congress held in Boston, Dec. 1, 1906.

Only when the master workman was also the merchant and the head of a small industrial establishment did the apprentice have a natural and organic place in the organization of industry. Under these conditions the apprentice found his proper teacher in the person of his master who was at once his employer and director and whose self-interest led to a training that was to the fullest degree broad and thorough.

As long as the productive unit consisted of this small group of master workman, a few journeyman and one or two apprentices, the system was adequate and effective. The instruction was the best to be had and the apprentice was an economic advantage to the employer and not a hindrance.

Just at the point that the capitalist entered as the employer of the master workman and the financial director ceased to be the shop director the apprenticeship system in its original form broke down and lost its place in the scheme of things.

Capitalistic organization of industry means the employment of numbers of workmen as wage earners whose sole responsibility is to forward the productive tasks assigned to them. Such organization generally means also extended division of labor. It meant these things before the introduction of steam and machinery and it still means these things in the trades where machinery is not used. In the trades where machinery is used it means these things still more, for the tendency of the machine is always towards specilization and the added cost of machine and power make the value of the workman's time for purely productive purposes much greater.

In this order of things the sole object for which the working force is organized is productive efficiency and this amounts to saying that the only thing such an organization can be counted on to do well is to produce efficiently. Inside this working force it is not only to no one's interest or advantage to turn aside and instruct the learner but such instruction, if in any sense thorough, can be given in the direct course of production only at a certain immediate loss.

On the other hand, the employer, now become in many cases the impersonal corporation, who is the only factor immediately interested to maintain the supply of labor, no longer depending upon the efficiency of a few co-workers but drawing from a general labor market helped out in many cases by the stream of immigration, recognizing the present cost and inconvenience of such provision and having no guarantee that the apprentice will remain in his employ, no longer feels the same individual necessity and responsibility of training the beginner.

Up to the present time only the large manufacturing concern has been able to see that future gain demands and justifies the immediate expense of some definite system of instruction and only in such concerns as a rule has there been any serious attempt to grapple with the problem.

Another element in the general situation is the attitude of organized labor which seeks as part of an economic policy to limit the number of beginners entering the trades. In certain cases the labor union rules are so restrictive that reference to mortality tables shows that the numbers at present in the trades would inevitably be reduced in the course of a few years if the ranks of the workers were not recruited from sources other than apprenticeship.

This attitude is felt by many employers to be one of the most serious causes of their present difficulties, yet it should be noted that in a large percentage of cases in many trades the employer does not care to take advantage of even the restricted number of apprentices allowed by union rules. The practical bearing of this factor undoubtedly varies much in the different industries.

Another factor which is perhaps as serious as either of those just noted is the attitude of the American boy and girl towards manual labor. Whatever may be said of the virtues of the American common school system and of the generous tendencies of American social life it cannot be said that the influence from either of these directions is at present towards the manual trades. The tendency of the boy and girl leaving the common school today is unquestionably towards those occupations that mean clean hands and good clothes, and which bring them into the more exciting current of mercantile life with its variety of sights and sounds and experiences.

That this tendency in part arises from the character of the course of study in the schools which places an overwhelming emphasis upon purely academic subjects and gives little opportunity for the development of sympathy with, or ability in, industrial pursuits is a conviction that, long shared by the few, seems to be rapidly gaining ground with the many. That manual training should do much to ameliorate and modify this attitude among school children has been the hope of educators for many years but alas! the indictment of the Massachusetts Industrial Commission—that this work has been conducted without reference to any industrial end and has been severed from real life as completely as have the other school activities—is in most cases only too true. When manual training divests itself of its present formal character and sets itself earnestly to deal with the realities of industrial life and to develop

insight into the meaning and possibilities of intelligent manual labor may we not be confident that much will indeed be done to create a greater sympathy and interest in industrial pursuits.

These are some of the conditions that are responsible for the present situation. It is these conditions which force the demand for some method of trade training outside of the direct conduct of industrial production.

The qestion at once arises,—Shall this method be through some new and more complete provision in connection with commercial practice or shall it be in the form of a school apart from commercial establishments.

In the first place it should be noted that the acute problem centers mainly in the skilled industries, such as the building trades, the machine or mechanical trades, printing, lithography and the publishing trade, and furthermore where specialized machinery is a large factor it is concerned with the preparation of the all around mechanic who is fitted for the duties of maintenance and supervision rather than the machine tender.

As has been previously suggested, it is as yet only the large manufacturing corporations that have felt the necessity and at the same time the ability to institute such training in any comprehensive fashion in connection with their own work. The methods employed vary to some extent in different establishments. Where the attempt is made to carry out a scheme of apprenticeship in the regular shop the usual plan is to place the learner under a shop foreman who is to see that he receives proper quality and variety of instruction. Such methods achieve more or less efficiency according to the spirit in which they are conducted but they all suffer from the reasons already pointed out, viz., the conflict between the economic aim of the shop organization and the needs of the learner.

It has remained for one large manufacturing establishment in this state (Massachusetts) to inaugurate a scheme in which provision for teaching is made independent of the conduct of the regular shop. In this plan,[2] the workings of which will be explained by another speaker, (Mr. Alexander) the foremost purpose is to provide ways and means for teaching a trade in the most thorough manner. By setting apart a separate equipment for this work and providing instructors whose sole business it is to attend to the wants of the learner, results are reached that are impossible under any system of supervision in regular practice.

If we were assured that all industrial enterprises were in the future to be conducted by great corporations we might well assume that some

[2] This plan is described in Proceedings American Society of Mechanical Engineers, Supplement No. 1, November, 1906, and in Machinery, September, 1906.

such plan as this would become universal and would be adequate to solve our problem.

Until such a condition becomes a fact, however, such a plan is obviously not capable of universal or even general adoption. At present its application would seem limited to very large concerns dealing with a specialized product requiring a high degree of skill and intelligence. This still leaves a large fraction of the field unprovided for and brings us to the problem of the trade school apart from any particular industrial establishment.

Here we face at once a double economic problem of a most serious nature. In fact it can be truly said, at the outset, that the problem of the trade school is essentially an economic, and only in a very secondary way an educational problem.

First and most serious is the great expense entailed upon the learner in losing a steady though small income during the period of school training. This is by far the most serious problem that the trade school must face, particularly if we assume that the period in which effective training for the skilled trades is possible, lies beyond sixteen years of age, practically in the years between sixteen and twenty.

One existing type of trade school endeavors to minimize this difficulty by confining its efforts to young men mature enough to learn rapidly, and concentrating its courses into five or six months. In spite of the fine work that has been accomplished by this type of school in certain lines it cannot yet be said to offer a complete solution of the problem. At present it is not well articulated with either the industrial or the educational situation and its graduates, who are on their way to become journeymen, have not as yet obtained a recognized and definite status from either employer or labor union. If, however, such schools be regarded as preparatory trade schools rather than as institutions to train journeymen, and in this view it is evident that they fulfill a very important though undeveloped function in the general situation.

On the other hand the few largely endowed schools providing longer courses and supporting their pupils during the period of training can, from the nature of the case, offer little suggestion for general adoption.

The second economic difficulty presented by the trade school, as compared with the shop school, is the expense of operation. In the shop school the product is of commercial value and is made to contribute to the general product of the works. In the independent trade school both material and instruction have no compensating commercial return, and the problem of maintenance of such schools is of necessity a

very grave one. It has been proposed that the trade school should take up work of commercial value and derive an income for the sale of its product. The practicability of this proposition for the conditions of an independent trade school remains, however, still to be demonstrated.

Under these conditions the fear of the labor union on the one hand that the establishment of trade schools will result in over-supplying the labor market, and the belief of the employer on the other hand that this provision will in itself result in solving the problem of a sufficient and well trained supply of workers would both appear to be without foundation. In the judgment of the speaker, if trade schools for all the principal trades were today to be established throughout the industrial centers of this commonwealth for boys over sixteen years of age, the yearly output of skilled workmen would be insignificant compared with the increment from immigration and inadequate to meet the industrial demand. To establish trade schools would be a comparatively simple affair. To fill them and to find a recognized place for the graduates is quite another matter. As a matter of fact what is needed is not one agency to meet our present complexity of conditions but many. One method will be of help to one trade and a different one to another and long continued trial and experiment will be needed before anything like an adequate general solution can be reached.

Perhaps one deduction from the above analysis is that among the least lines of resistance opening out before us at the present time is the provision by state or municipality of preparatory trade schools for boys and girls of the ages from fourteen to sixteen years—the period when the question of self-support is far less serious than in later years and when the boy or girl is of comparatively little economic value as a wage earner; the period when great numbers are turning from the common schools largely because of the craving for more practical experiences; the period in short that has so well been designated as that of the wasted years for so many thousands of boys and girls.

A type of school seem possible to many at this time which while not developing efficiency in the highly skilled trades, would have many outlets into the low-grade skilled industries and which would give such a start towards the high-grade industries that not only would the learners' chances of success be much improved but the problem of training for such industries would be much simplified. Such schools if successful would make organic connection with the common school training, and they could unquestionably do much to develop, not only manual skill in fundamental practical lines, but that industrial intelligence which

is so wanting in the present situation. These schools, however, must meet many problems and obstacles before they can become a factor in the situation. In the first place, the hostility of organized labor is liable to be aroused by the proposition to establish such schools at the public expense. Furthermore, it will probably not be easy to gain public support for a type of school which will be frankly vocational in character but which goes only part way to solve the problem of trade training. On the other hand, the whole question of what should be taught in such schools, whether fundamental and general industrial operations or specialized processes, remains to be worked out.

So far reference has been made only to the question of training beginners for the industries. We should not lose sight of the fact, however, that industrial education involves another problem, viz., the improvement and advancement of the condition of those already entered in the trades. This happily is a much simpler problem and one in which a great deal has already been accomplished through the provision of evening industrial schools. Such schools divide naturally into two lines: one of these aims to advance the practical skill and knowledge of beginners in the trades.

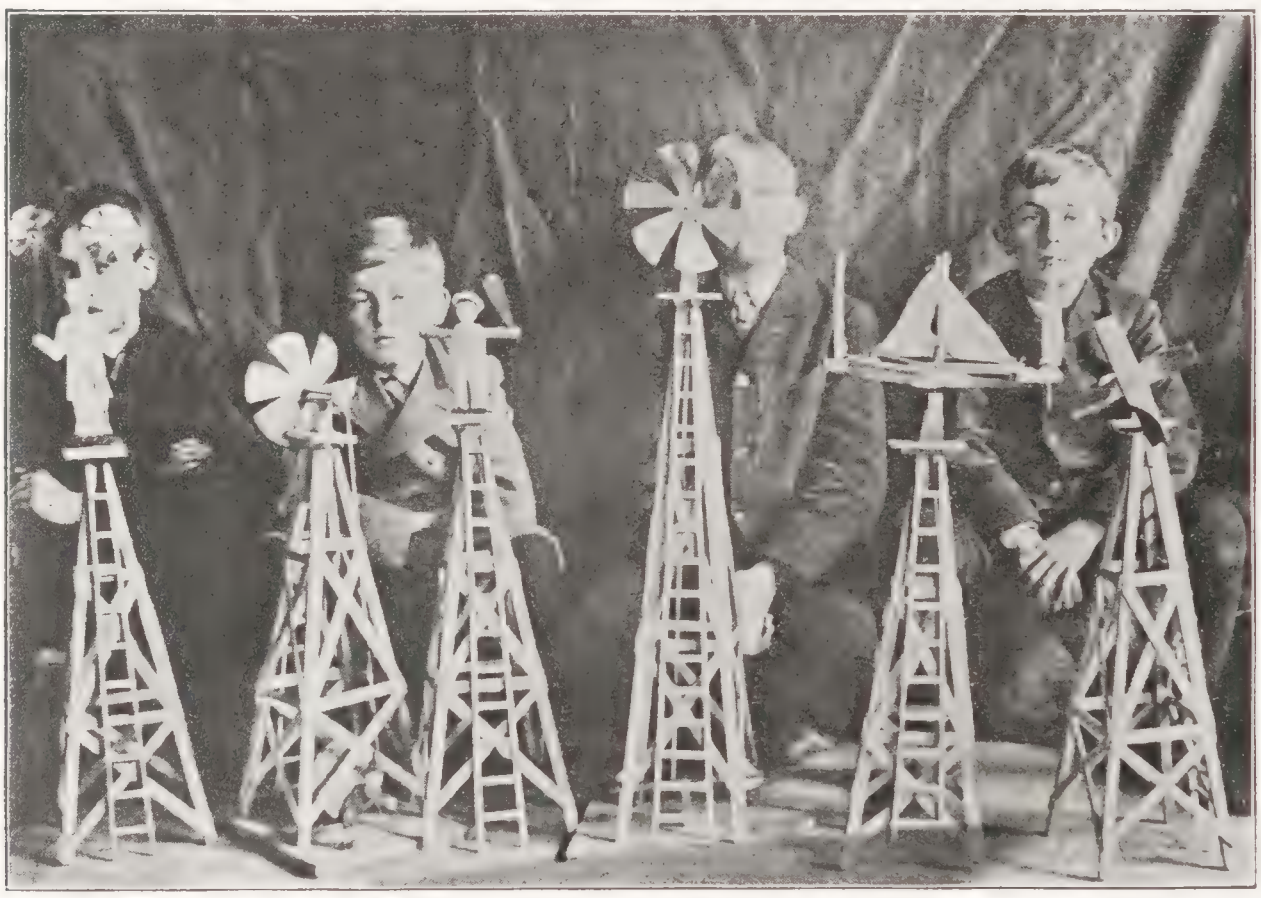
Because of the economic difficulties already noted and also because of the fact that a very large fraction of those entering the skilled trades enter as helpers and not as apprentices it is clear that this type of school fits into the situation with peculiar helpfulness and that it is liable to play an important part in the matter of trade training. Very encouraging results in this direction have already been obtained by the admirable public institution at Springfield in this state, and by both public and private evening schools in other industrial centers.

The other type of school and one which also has a very important function might be called the evening supplementary industrial school. This school, which was so well described in the meeting of last evening, offers instruction in those branches which tend to broaden the intelligence and enlarge the industrial capacity of the workman, such as mechanical and architectural drawing, mathematics and science as related to industrial practice, technical methods, estimating and designing.

This type of so-called continuation school has long been developed to an extraordinary extent and diversity in the different countries of Europe, and in our own country there are many prominent examples. Such schools form one of the simplest and most effective means of adjusting the worker to the increasing complexity and scientific character of modern industries and are undoubtedly destined to play a very im-

portant part among the many agencies needed for a complete solution of this great problem.

Parallel in aim and economic relation with this last group is the correspondence school that has had such a tremendous development in the United States during the last two decades. The expansion of these schools is but one indication of the extent of the demand for industrial and technical education in this country, and their growth is but another evidence that all successful efforts to meet this demand must proceed along the lines that are economically those of least resistance.



SIXTH GRADE, MODEL SCHOOL DEPARTMENT, STATE NORMAL SCHOOL, MOOREHEAD, MINN. (SEE PAGES 184 AND 185.)

A HIGH-SCHOOL COURSE IN WOODWORKING FOR COLLEGE ENTRANCE CREDIT.[1]

CHARLES A. BENNETT.

SINCE the public high school is at the same time both a continuation school and a preparatory school, every subject taught in the high school is considered alike from the standpoint of fitting for lifework and fitting for college. Whenever a new subject is introduced into the curriculum of the high school it not only raises the question, Of what use is it in life after school days are over? But also, very soon, Is it worthy of entrance credit at the university. And so it is that the manual arts, which have passed the first interrogation are now being examined with reference to the second.

Besides presenting proof of mere utility, a subject worthy of consideration at the entrance to the university must give evidence of having a content that has been organized and that is, in some degree, at least, related to other subject-matter. Its friends must prove that it is an important department of human knowledge and that it has been so classified and arranged that its fundamentals may be taught, and that standards of attainment may be established.

It is the purpose of this article to outline a course in woodworking which shall meet these requirements, but before doing this it seems desirable to discuss in some detail high-school manual training in its relation to certain courses in handwork given in the university, and in doing so to emphasize the difference between the two, as well as to point out their likenesses, with the end in view to discover, if possible, what courses in shopwork are appropriately university courses and what are essentially high-school courses. The tendency of the high school in this as in other subjects often—indeed, far too often, has been to copy from the university,

[1] This article is a revision of a paper presented at the High School Conference held at the University of Illinois, November 23rd, 1906. The same matter was presented and discussed at the meeting of the Illinois Manual Arts Association, held at Lewis Institute, Chicago, February 16th, 1907. The outline included in the article will be the basis of a syllabus now being prepared by a committee for presentation at the next high school conference, to be held at Urbana, next November. It is presented at this time to call forth discussion, and because there is wide-spread interest in the subject.

yet the high school and the university really represent two different stages in the work which are just as unlike as a college course in exposition or argumentation is different from an elementary course in rhetoric and composition. One is relatively narrow in its scope, more intensive, more advanced; the other is broader and more elementary.

This difference may be brought out more clearly by an example: The Engineering Department of the University of Illinois gives a course in woodworking. A course in woodworking is also given in an Illinois township high school. What is the difference? Both employ workbenches and planes and saws and chisels; both teach the use of these tools; both teach certain fundamental elements of construction—a mortise-and-tenon joint, for example, yet they are so different that the Engineering Department cannot safely accept the high-scool course in woodworking as a substitute for the course given at the University. Moreover, if the high school in beginning the subject of woodworking were to pattern its course after the University, the school would not be doing the best thing for its students. In order to see the true relationship between these courses, we need to get back to their respective aims and boundaries. Neither course attempts to cover the whole field of woodworking. When we think of the vast extent of the subject as applied to framing, house carpentry, interior finishing, wood-carving, wood-turning, pattern-making, cabinet-making, and the work of the wheelwright and the cooper, besides many still more highly specialized forms of woodwork, we see how impossible it is to cover all these in any school course, and certainly how foolish it would be to do it even if it were possible. What is done is this: The Engineering School selects from this extensive list the particular processes that are essential to the best training of an engineer. It takes problems in a very narrow field, culminating in pattern-making; and the pattern-making is taught not so much on its own account as because of its relation to founding and machine construction. The high school on the other hand selects fundamental tool processes and typical forms of construction from any of the woodworking trades. It seeks out elements that serve its purpose, which is general education. It culls the trades for problems that relate in a vital way to the other branches of school instruction. The result is a course that is relatively broad and very elementary.

If all high school courses in woodworking were the same, and as different from university courses as has been indicated in the above illustrations, the problem of credits would be much simplified, but they are not. Between these are to be found all shades and grades of courses,

some leaning toward university work and others not. Then, too, there are such high schools as the University High School in Chicago and the Crane Manual Training High School, also the academic departments of such schools as Lewis Institute and Bradley Polytechnic Institute, that offer advanced courses in woodworking, especially courses in framing, turning and pattern-making, which are in most points like the technical courses at the University, yet retaining some features that belong especially to the manual-training work. For many of these advanced courses the University does and should allow full college credit, but one can easily believe that the engineering faculty often find it difficult to determine just where to draw the line between credit and no credit. The work done, even when equivalent in time, has been gaged by a different standard and presented from a different point of view. What, now, is the reasonable solution of this problem?

First of all, it should be recognized that there are two types of shopwork carried on in our schools and academies; (a) manual training courses per se, and (b) techincal courses. The former are part of general education, valuable alike to the boy who goes to the engineering school and the boy who does not. Such courses might be given entrance credit by the University. The latter lead directly to some technical employment or trade, and, in the present adjustment of shopwork to engineering courses, deserve, and get advanced or college credit.

Among the manual-training courses should be counted a broad, general, elementary course in woodworking and a course in hand-tool work in metals, covering, filing, fitting, bending, raising, riveting, soldering, turning, spinning, etc. Parallel with these should be courses in drawing, giving special emphasis to working drawings and design. All of these courses can be carried out in township high schools without excessive outlay for tools and equipment. A possible two-year arrangement is shown below:

First Year	
Woodworking	5 hours a week
Mechanical Drawing	3 hours a week
Freehand Drawing	2 hours a week
Second Year	
Metalworking	5 hours a week
Freehand Drawing (Design)	3 hours a week
Mechanical Drawing	2 hours a week

This provides for the equivalent of a full year's work in each of the four subjects named, and when these are properly organized and efficient-

ly taught, they become appropriate subjects for college entrance credit.

There is one serious danger in this proposition to offer entrance credit for such courses, but it is a danger to the school and not to the University. It is the danger that the scope and standards of attainment in such courses would be set by the engineering college. This would be most unfortunate, because the view-point of the engineering-college professor is quite different from that of the high-school principal or teacher. The standards of such courses should not be dictated from above, but should be set by high-school teachers themselves in consultation with, or subject to the approval of the University, and the high-school teachers would have to exercise rare judgment in outlining these courses, for any system of credits that would produce stereotyped courses, taking out of manual training its present freshness, life and variety, would be most unsatisfaorcty. But realizing this possible danger, it may be avoided.

Among the technical courses, which are now given by a few schools, may be mentioned pattern-making, foundry work, blacksmithing, and machine construction. Included in the same list should be two or three advanced courses in drawing. From the high-school stand point such courses are helping to supply the growing demand for occupational training. On the university side they take the place of courses offered in the engineering college, and therefore, college credit is given for them. If the purpose of such courses is recognized as technical instead of general education, then there is no reason why they should not become more strongly technical than they are at the present time. Such a change would enable them to come nearer meeting the urgent demands for secondary industrial education, and at the same time come nearer satisfying the needs of the college of engineering. In these courses the engineering college should be a large factor in setting the standards.

All this does not mean a radical change from the present organization of schools and courses, but it does mean a carlified vision with reference to the aim and scope of high-school courses in shopwork and a readjustment in reference to the parts of the work that are to be emphasized. Furthermore, it sets a reasonable goal for the smaller high schools and gives the larger ones the recognition they desire. It gives manual training its true place, keeps it within reasonable bounds—practically defines it, and places it in proper relation to technical education.

We turn now to consider more in detail the course in woodworking. The conditions in our state are such at the present time that it seems necessary to treat all these as beginning courses. Manual training work in elementary schools is not yet well enough established throughout the

state, nor is it sufficiently alike in the diffierent cities and towns to safely build upon it as a foundation in preparing a high-school outline. On this account the outline best suited to present conditions should be modified somewhat as soon as the work in the elementary schools becomes better organized and generally adopted, yet the courses should not be radically changed. The change would not be so much in extent as in richness and breadth. The field outlined below is considered essentially the high-school field in each of the subjects under consideration, though the earlier part of the course may be covered in the grammar grade.

In the second paragraph of this paper it is stated that any subject worthy of consideration at the entrance to the university must give evidence of having a content that has been organized and arranged so that its fundementals may be taught, and standards of attainment established; this ought to be true whether or not the subject is to be presented for entrance credit. Moreover, this organization, certainly so far as high-school work is concerned, should grow out of the orderly arrangement of its own subject-matter—not fundamentally out of its relation to other groups of subject-matter. This arrangement should in turn be governed by logical psychological, and often physiological considerations. Manual training is no exception to this rule. Whatever our point of view concerning the function of manual training in the primary grades, I believe that when we give the matter thoughtful consideration, we must all agree that in high-school work manual training is fundamentally a subject, however valuable it may be as a method, and that as such, a course in manual training must be arranged with primary reference to the development of its own subject-matter. An interesting parallel is found in the natural sciences. We arrange courses in the several branches with reference to the subject-matter of each branch, however much value we may place upon the method acquired in that branch, for we recognize that the value of the method is largely dependent upon the organization of the subject-matter. Indeed, we would find it difficult to justify the teaching of any branch of science as a mere discipline. We teach it primarily because of the value of an acquaintance with the facts and laws of the subject. So with any branch of manual training in the high school, its value as a method of thinking and doing with reference to other branches of knowledge is dependent fundamentally upon the organization of its own subject-matter in accordance with its peculiar nature. And so in taking up woodworking, we first make an analysis to find its fundamentals of subject-matter and then arrange these in accordance with the laws governing the development of the student of this particular subject, or what is

practically the same thing, in accordance with the laws governing the teaching of the subject.

OUTLINE OF ONE-YEAR COURSE IN WOODWORKING

GROUP	PROCESSES	PROBLEM
I—Giving the first use of the *saw* and the laying-out tools, such as the gage, trysquare and rule.	Measuring Squaring Gaging Sawing Boring Making dowel	Game Board Counting Board Laundry List
II—Emphasizing the first use of the *plane.*	Planing— (1) surface (2) edge (3) to dimensions (4) chamfering	Swing-board Hat-rack Bread-cutting board
III—Teaching the first use of the *chisel.*	Vertical chiseling Gouging Paring Sharpening chisel	Shelf and brush-rack Tray Sleeve-board
IV—Invoving "form work" and the first use of the *spokeshave.*	Bow-sawing Modeling Sandpapering	Coat hanger Tool handle Canoe paddle
V—The construction of objects by means of some form of the *groove joint.*	Housing Halving Nailing Carving Finishing	Waterwheel Test-tube rack Book-rack Flower-pot stand Loom Sled Box-trap Bracket-shelf Knife-polishing board Towel roller
VI—More exact work in planing in order to make a *glue joint.*	Planing joints Gluing Clamping	Bread-moulding board Drawing board Bench-hook
VII—Construction by means of the *Mortise-and-tenon joint.*	Laying out duplicate pieces. Cutting a mortise, sawing tenon, finishing	Stool Plant stand Taboret Umbrella rack Table

VIII—Constructions involving the *Miter joint.*	Planing parallel edges and sides Use of miter-box Laying out brace	Miter-box Framing a picture Box Bracket
IX—Elementary cabinet-making involving the use of *panel.*	Plowing Fitting Putting on hinges	Sewing cabinet Music cabinet Plate-rack Screen Bookcase

In the accompanying outline the work is divided into groups, or chapters, in accordance with the progressive development of the subject, and in harmony with experience in teaching pupils of high-school grade. The first four groups emphasize the elementary use of the four principal cutting tools and the necessary laying-out tools. The next four groups treat of four typical forms of joining. The last group is made up of problems involving the panel. The outline suggests only the more important processes. Under each group several problems are given, though not more than one or two in each group need be made by any individual pupil. These problems are merely suggestive, and the course could be carried out just as well with an entirely different list of problems. The problems may be selected and assigned by the teacher, or the pupil may be allowed to choose. After the fourth group many of the problems may well be worked up as individual projects by the pupils. Several such projects should involve design.

It is believed that the course here outlined has sufficient content value to deserve a place in any high school, that it is worthy to receive entrance credit at the University, and that it provides a good general foundation for technical courses in woodworking.

PRIMARY MANUAL TRAINING.

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AMONG the various kind of constructive work found in present courses of study, there are two which seems eminently bad, and which are also very common. The first is composed of a sequence of problems, absolutely fixed, which are to be presented in every room of the grade for which they are designed. Such an arrangement is rigid and unimaginative. It is irritating to teacher and pupils by virtue of its impersonal character and is inconsiderate of existing conditions in the several schools and rooms. In the second kind one finds a happy-go-lucky jumble of exercises, not well interrelated, each being an isolated selection, contributing little or nothing to the rest of the year's work. This is a shiftless scheme of drifting from one day's work to the next without aim.

Since the science of education includes the manual arts in the body of knowledge to be given children, it remains for the art of teaching (which includes method) to present this knowlodge as clearly and effectively as possible.

INTRODUCTION.

There are two processes in the art of teaching constructive work, which should be noted and accepted.

1. The use of formal, partially dictated problems, to give exact information and technical skill to the pupil. This becomes a fault when it is the only method used. It is profitable when employed to develop orderly construction, that the pupil may himself create more and more.

2. The discovery and systematizing of childrens' interests, that they may be utilized as subject-matter for classroom work.

The quantitative relation between these two processes varies with the different grades. Number two is freely used in early years, with a minimum of the first. Formal teaching, definite instructions, and complex operations increase in amount and number as the age of the pupil increases. The aim of both methods is to direct pupils' efforts along favorable paths.

The choice of work for each grade and consequently of the materials to be used in it, is a bit difficult because there are so many kinds. The substance with a wide range of usefulness is always desirable for general work. On the other hand such material as iron strip (for bent iron work) is without value in every art. Its possibilities are extremely limited and there is no grade in the school where it cannot be replaced with a better medium.

There are in common use the following forms of manual training: (a) kindergarten occupations; (b) drawing; (c) folding, cutting and pasting of paper and cardboard; (d) clay-modeling; (e) weaving; (f) basketry; (g) knife work in thin wood. These are the most familiar ones. In addition one finds numerous problems in unusual, expensive and more or less foreign stuffs, which are the outgrowth of a desire for novelty; these have no place in the present discussion.[1]

The seven modes of expression mentioned, are useful to the teacher in just such a degree as they are suitable to illustrate children's ideas in her particular grade. For instance, the value of modeling rests not so much on what is possible in clay as an artistic medium, as on the appropriate character of clay for the simple representation desired from children.

In choosing from the above list, there are these consideratins to be noted:

[1] It is especially necessary that constructive work be put on some simple basis, that schools with small equipment may use it. The work should be of a kind which can be learned and taught by grade teachers, and be not unduly expensive.

1. That the plan of work be such as can be worked out in materials which are familiar to the pupils. These may be products used in some local industry, or grown, mined (clay) or manufactured in the locality or state. If they are known in the community, so much the better; they should at least have industrial value, not too remote.

2. That the character of the community can make or break a manual training scheme. The environment of a city child is totally difierent from that of the child in the country and small towns, and must determine in no small degree, the kind of constructive work that will be vital. The cotton country of the south, the centers of textile industry, great pottery and brick plants, river towns and sea-ports, lumber mills, mountain districts, and agricultural sections are all types of communities that must make their impression on the life about them. The teacher of the manual arts does well to use what he, or she can of the common knowledge, ideas and skill already existing in his bailiwick.

THE GENERAL SCHEME.

Keeping in mind the several points stated above, one's next step is the planning of the scheme of work for the four or five primary years.

1. Select for each of the first three grades, some one central topic of real interest to the pupils, which will require sustained effort for several weeks or months. The following are suggested as familiar to most school children.

(a) The doll or play house with furniture, wall-paper, rugs, etc. The house may be constructed of soap boxes for rooms, and the furniture will in many ways reflect the living ideas of the children.

(b) A farm house with outbuildings, fences, wagons, animals, etc. In the development of this topic, details of construction in fence, buildings and vehicles, should vary in each room. The creation of new forms should be encouraged.

(c) A small village of houses similar to (b), with post-office, stores, church, school house, etc. This problem may be modified to show a city street with appropriate buildings, trolleys, trucks and the like.

(d) Indian life as depicted in Hiawatha; Pueblo Indians with their pottery and weaving.

(e) Eskimo life—a typical winter study.

(f) Methods of transportation and conveyance.

(g) Such industries as mining, lumbering, etc.

Any one of the above topics will furnish enough constructive problems to occupy all the time available. It is the best to assemble the results in each room on a table or broad shelf, in order to show the topic as a whole, and tie the several portions of the study together. This gives homogeneity to the exercises and tends to bring the objects made into scale as to size and kind.

FIRST GRADE

2. Pick for the fourth grade some typical industry or craft and work it up as completely as possible. By this time children are ready to learn something of technique and can understand many of the principles underlying construction.

(a) Clay-modeling is good work at this time. It can be used as modeling pure and simple, from casts, fruit and plant forms, and animals, or a study of the clay industry. If the latter, the problems will take the form of useful bowls, jars, tiles and the like. The essential steps in the production of ceramic wares will be illustrated.

(b) Booklets, folders and boxes, which involve careful measurement, accurate pasting and appropriate lettering and decoration. The booklets especially, are typical of a series of exercises intended to build up the conception of the less complex productions of printers and bookbinders. There are certain conventions in the use of titles, of paging, use of initials, etc., that are important. Moreover, lettering is a phase of design, very much neglected, which could be developed here. The teacher should encourage, even insist upon good lettering. A very plain clear alphabet should be used and the proper construction of letters learned. Nothing so enhances a bit of work, which requires them, as fine, well-spaced, perpendicular letters.

Both the above topics may have been used incidentally in previous grades, but here the work is to be given more completely. The subject is isolated and elaborated, partly for the acquirement, by pupils, of workmanlike handling of material.

3. About the fifth grade pupils may begin the serious study of right construction, proper handling of tools, and above all, the *economical use of material.*

Probably the most useful types of work here, are whittling in thin wood, and basketry (with reed, not raffia). It is also best to separate boys and girls, if equipment allow this.

These two forms of manual training offer all the possibilities of design that are needed and the materials themselves possess enongh resistance in working to demand much skill from the pupils. As to problems in thin wood, the books and professional magazines are full of them, but these have little relation to each other save that of similarity in the method of making and finishing. For this reason it is well at some period in the year to include a project which will occupy several pupils as a group, or which will interest the class for an extended time.

(a) Devices for the measurement of time or matter, as weights and measures.

(b) Simple mechanical devices, toys, etc., as water wheels, weather vanes, wind-mills.

(c) Houses for animals, birds and other pets. These will require the use of other tools than the knife, but this is desirable to an extent.

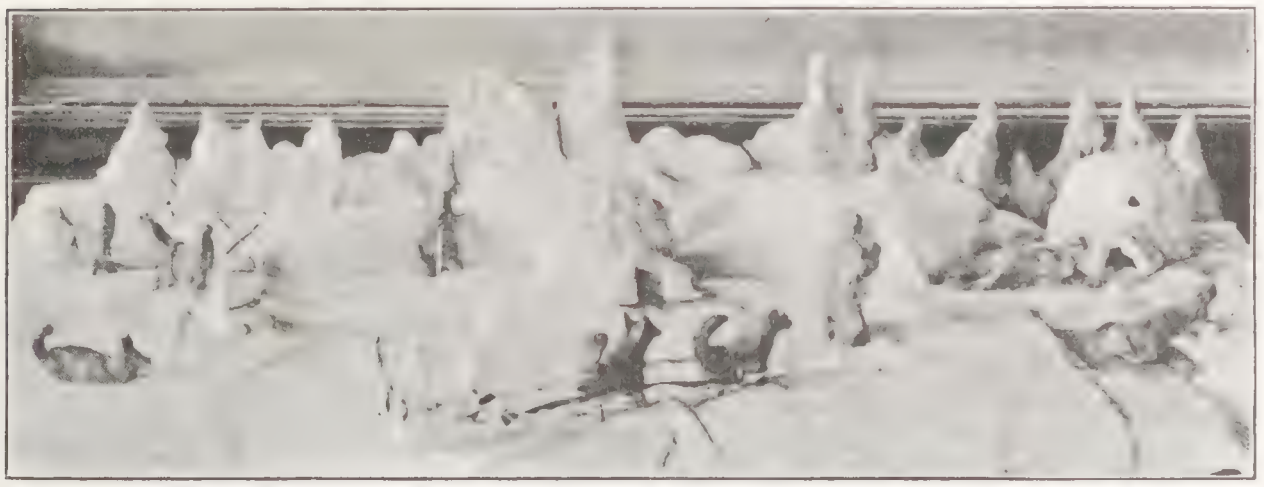
The above outline forms the backbone of this tentative course. No two teachers will choose the same series of projects, nor handle what is selected, in the same way, but there should be some one central idea un-

derlying the plan for each year. Also, each year's work should make use of the experiences and knowledge acquired in the grades below it; this is the only advancement.

SECOND GRADE

SUPPLEMENTARY PHASES OF THE SCHEME.

In addition to this main stem of the proposed course, there will be in every school many secondary problems, more or less formal, that may or may not be related to the main part of the year's work. If not there will be cogent reasons for using them—as some immediate school or personal need. The following is a fair selection:



SECOND GRADE

1. In the first year the weaving will include beside rugs for the play house, small bags, blankets and dolls' hammocks. Hallowe'en, Christmas and St. Valentine's Day will be occasions for special lessons. These latter gifts should be real children's things, made as they can do them.

2. Pupils of the second and third years tend to originate new constructions to meet individual or class needs. Christmas inspires innum-

erable projects as, cards, decorated boxes, cornucopias, booklets, calendars, etc. Later such things as valentines, invitations to class exercises and school exhibitions, blotters, desk-pads, and portfolios are likely to appear. All these give much skill, which is essential to later ambitions.

These exercises should be used at the moment when they will be acceptable to the children, whose desires must be so guided as to insure success.

SECOND GRADE

3. In the fourth and fifth years may begin the unfolding of the science of design. Even the simplest facts and relations cannot be taught earlier, to advantage. Pupils can now understand the essential elements of design as applied, for instance, to the border, and devise and apply such patterns to their work. Pottery-making and basketry are excellent crafts for this purpose, since they admit of only decoration of the most straightforward and simple kind. Fine lines in clay fill up when glazed; ornate motifs are impossible in reed basketry. Thin wood has equal advantages, since the grain of the wood and method of finishing with stains help to make the results unobjectionable.

DETAILS OF ORGANIZATION.

The scheme as outlined above will produce valuable results, not alone as shown in the school exhibition, but in the attitudes of the children themselves. Their knowledge will become unified and readily useful, both in and out of school. But there are certain details to be observed:

1. The center of interest chosen in each grade should be in harmony with the work of that grade in other branches. The stories, reading and nature study embodied in the schedule for the grade will be a guide.

2. In the first three or four grades, drawing and manual training are very closely related. They should use much the same subject-matter for a large part of the time. For instance, the grade which makes the farm house and accessories, will draw buildings of various kinds, animals, vehicles and landscape; these will be combined to make pictures dealing with farm and rural subjects.

3. The work should be planned for the grade teachers very much in detail, that good constructions may be used. The outlines should include drawings and plans of typical forms, and each class of problems illustrated by finished work to show the possibilities. Once a type of exercise is firmly in mind, the teacher will find little trouble in obtaining from her class, variations and new pieces.

4. All material for this work should be furnished in size and condition easy to handle, but not ready for use by the children. Pupils ought to learn to prepare their own material for each problem as soon as they can use the ruler; this will be in the second year.

SUMMARY.

The most profitable work is also the most free and elastic. To secure it the teacher should not be tied by rules of fixed proceedure. Each room requires individual treatment, but always there must be some tie that binds the various lessons into a well-defined group for each grade. This tie is found in the intense interest of children in the life about them.

SWEDISH SLOYD — I.

ALLISON A. FARLEY.

Oshkosh Normal School.

SWEDEN is a land of lakes, forests and mountains. These topographical features constitute so large a part of the country's surface that only about eight per cent of the total area is available for agriculture. Lying within the Arctic Circle, its northerly climate gives but slight encouragement to vegetable growth and permits the ripening of only the most hardy cereals. The long winters with their characteristic cold and darkness make the season for carrying on the regular farm activities much shorter than in the more favored climates. Hence agriculture, the basis and source of every nation's strength is made exceedingly difficult under these hard and unfriendly conditions. Its successful promotion is made possible therefore only through the exercise of certain fundamental qualities. For getting a livelihood in this region great physical strength, extraordinary industry, rigid economy and frugal living are indispensable. Moreover, the prosperity of a country which has not developed a great capitalized wealth depends peculiarly upon the degree of intensive exploitation of its natural resources. For the fullest development of these resources under such conditions there is no need of great cities, but rather of a dense country population. It becomes a physical necessity to develop a "bold peasantry".

Owing to the existence of such a rural population, possessing the aforementioned qualities, Sweden is enabled to stand to day among the nations of Europe as a strong and forceful nation. She exists because of the existence of such qualities in such a people. With the failure of either goes the failure of the Swedish power.

Partly owing to the wide distribution of the population over a territory not easily accessible to ordinary means of transportation, making exchange difficult; partly owing to the inability of soil, lake, and forest to produce a living even with the most strenuous exploitation of all of their possibilities, making necessary domestic manufactures to supplement the agricultural labors; and partly owing to the necessity for physical exercise and intellectual diversion during the monotony of the long, dark winters, the peasants generally have resorted to manual activities of various

kinds. In times past the men were wont to whittle from wood, rude toys and trinkets for the children. They also manufactured most of the furniture of the house and the implements for the farm. The women prepared the wool and the flax, spun and wove the same and made the garments for all the household.

For economic, social and geographic reasons the factory system has had slow development in Sweden. Writing under date of 1870 Mr. Lloyd in his book, Peasant Life in Sweden, says of the home industries, "the females of the household weave all of their linen and perhaps a little more which they dispose of." He says further, "the peasants of the rural districts are all more or less versed in some handicraft or other. One and all are adepts in the use of the ax and can carpenter tolerably well.—The peasant is in fact a tolerable mechanic and there are few things he cannot turn his hand to.—Even if he resides in the wilds of the forest he has most of the necessaries of life at his command and is therefore independent of the outer world." With the slow but sure growth of the factory system and the consequent cheapening of manufactured goods; with the improvement of highways and the development of railroads, making communication and social intercourse easier; with the extension of the ability to read and the dissemination of books and literature; with the introduction of labor-saving farm machinery, the need for the house industries for social and economic purposes has been greatly diminished and consequently domestic handicrafts have suffered a corresponding decline among the Swedish peasantry.

Contemporaneously with the decline of the house industries there has been observed a decay among the peasantry of those sterling qualities which had been the chief cause of the country's upbuilding. An especial tendency to the use of alcoholic liquors and to spend the time in winter idling in the taverns instead of at the customary forms of handwork was observed among the men of the country. Cronholm reports in his history of Sweden, II, that incipient moral degeneracy was evident among the Swedish people as early as 1840. These evidences of growing weakness in national morals was viewed with considerable concern by the intelligent people of Sweden who foresaw therein the decay of their national life. The contemporaneity existing between the decline of the house manufactures and the moral decline suggested the former as the possible cause of the latter. Actuated by this belief private societies which had been organized throughout Sweden for the furtherance of the economic interests of the country, especially those of agriculture, conceived the idea of establishing schools for the purpose of giving instruc-

tion in the several handicrafts (huss-slöjd) and of reviving the national interest in these pursuits.

Many of these industrial schools, designated as sloyd schools—a term derived from the Swedish word "slöjd" meaning manual dexterity—were in existence according to Cronholm before 1844. The economic societies, provincial councils and private individuals continued to foster these schools unaided by the public funds until the year 1872 when the combined efforts of all these different agencies succeeded in passing a bill through the Swedish parliament appropriating money for the promotion and support of these schools. The expressed object of this appropriation was to check the drift of population towards the cities and the decline of the old home industries. In 1877 a special subsidy was granted by the parliament to every school giving instruction in handicraft to boys. The amount of this grant was increased in 1891.

One of the government stipulations in the regulations governing the 1877 grant was that "the instruction given must aim at producing not dexterity in any given craft but manual dexterity generally and ability to use the most familiar tools". This stipulation is significant as the expression of a conviction that had begun to prevail even at that early date, that it was impossible to revive a decadent form of industry, and also that the instruction supported by public funds should not discriminate in favor of any particular trade or industry but that it should be generally educational.

One of the numerous private schools of sloyd established during this early period was that of August Abrahamson, a wealthy Swedish gentleman. Mr. Abrahamson founded his school in 1872 for the benefit of the peasant children on his estate at Nääs. This school was open to both boys and girls and in common with others of its kind at that time, had the purely utilitarian aim of preparing the young for some special trade. The course of study was typical of its class also. The subjects deemed of particular importance in the curriculum were arithmetic, the Swedish language, geography with especial emphasis upon its physical features, drawing, and sloyd. Seven hours of every ten were devoted to sloyd work of various kinds, as carpentry, turnery, wood-carving and saddlery for the boys; weaving, spinning, knitting, sewing, and cooking for the girls.[1]

This school at Nääs is of the highest significance in the history of the sloyd movement not only for the reason that it has become the principal training school for sloyd teachers in the world, but also, because it

[1] Otto Salomon. Handbook of Swedish Sloyd.

has been from its inception to the present day, the experimental school where the principals and practices comprising the theory of sloyd have been discovered and tested.

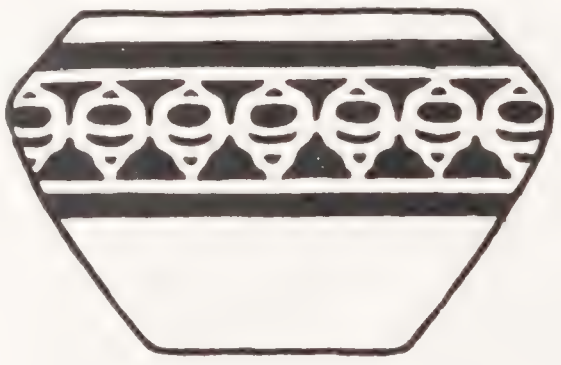
Mr. Otto Salomon, the director of the Nääs school, the founder and principal propagandist of the sloyd system, received when a young man no special preparation which would tend to fit him to become the leader of a vital, evolutionary educational movement. His school education was very moderate. It consisted of a few years at the real gymnasium of Gothenberg and a year of study at the agricultural institute at Altuna. Chance placed him as a young man of twenty-three at the head of the little, private school at Nääs. The profound and widespread desire throughout Sweden for a method of utilizing the activity of the hand for general education gave him his opportunity to perform for his country a service, and thereby render himself famous. He did not himself create either the idea or the movement to realize the idea which arose in Sweden. The conception that hand activity is essentially brain activity was advanced by Plato, Quintilian, Bacon, Froebel and many others before Salomon's time. The rise of the popular movement for manual training in the public schools in Sweden also antedated him. What Salomon did was to originate a mode whereby the desire for manual training, which was felt to be a national desideratum, could be realized. He originated and developed a system of sloyd instruction which was practical. Although in the light of modern educational theory this system may be regarded as defective, it has the weighty consideration in its favor of having accomplished what it was intended to do. It worked. As an evidence of what systematic sloyd teaching has done towards realizing its purpose of institutionalizing sloyd in Sweden, the statistics show that 727 sloyd schools were receiving government aid in 1885, while nearly 2000 were receiving such aid in 1894.

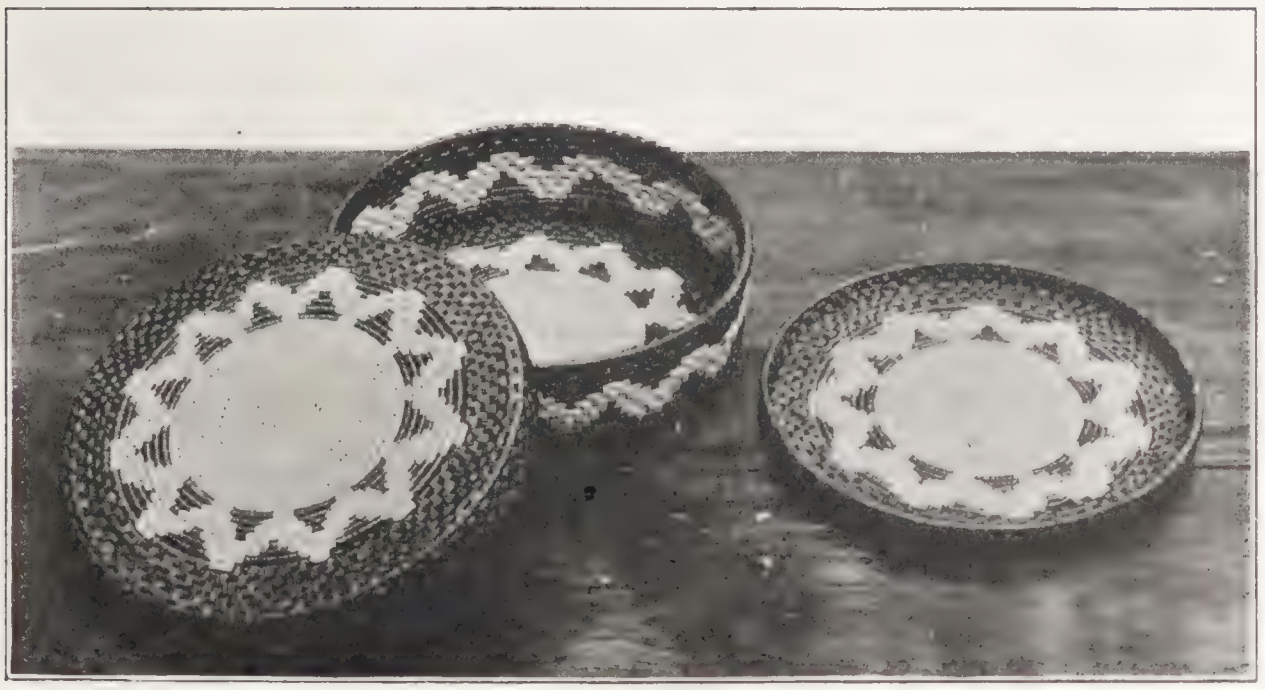
Salomon had no preconceived philosophy of a profound or thoroughgoing sort; no knowledge of modern psychology by which to test the validity and correctness of the results of his experiments. He built up his theory along with his practice, a factor of great significance in the evolution of the system. He supplemented his personal investigations by extensive reading of the history of education and by travel and observation of the contemporary education in the various countries of Europe.

In 1877 he visited Finland. Dr. Woldemar Goetze is the authority for the statement that "the first country where manual training was acknowledged as a branch of instructions with full rights in the primary

school was Finland." As early as 1858, Uno Cygnaeus, for many years superintendent of the Finnish schools, first organized his plan for manual training for the elementary schools of Finland—a scheme he was able to put into actual practice after his appointment by the Russian government as chief inspector of the Finnish schools in 1861. The following quotation from a letter written by Cygnaeus shows what he considered the educational value of manual training to be. He says, "I was led to the thought that we must introduce into the school not only the Froebelian gifts and the rest of the exercises in the work recommended by him, but also for the elder children such kinds of handwork as have for their aim the education of the hand, the development of the sense of form and the aesthetic feeling, and to help young men to a general practical dexterity which shall be useful to them in every walk of life; such work as joinery, turnery, basket-making, etc. But all of these kinds of work shall not be conducted like a trade but always with reference strictly to the universal educational aims." That Salomon was greatly influenced by what he saw of Cygnaeus' work at the time of this visit and by the subsequent correspondence which he carried on with him is evident from the following eulogy which he made of the latter at the time of his death. "Uno Cygnaeus, the great teacher, the ardent patriot, the founder of the primary schools of Finland is no more. I see still all those looks full of affection and admiration which are bent on him. I still remember the almost religious silence with which they listened to his speech." Salomon returned to Sweden from Finland with two ideas rendered prominent in his mind. The first was the importance of the elementary school as the basis of all future education. The second was the conception of sloyd as a means of disciplinary or "formative" education. In the succeeding years at Nääs he developed by careful experimentation and testing a system of woodwork for the elementary schools.

(TO BE CONTINUED.)





THE STRAP-STITCH BASKET.

CORDELIA J. STANWOOD.

THE dainty, useful basket that may be constructed of raphia and reed furnishes an opportunity for the teacher to aid her pupils a bit along the line of interest. The work itself is simple and after one has learned the stitches and understands how to introduce a pattern, it is sure to grow upon him, the possibilities are so many. Given beautiful colors to work with, the very ownership of them seems to crowd the mind with so many decorative ideas that time alone limits the results.

It is best to make the first basket without decoration, spending all one's energy on the technique of stitch and form. In order to keep the form clearly in mind make a sketch of the basket. When there is to be a design, indicate it. Wash the natural raphia thoroughly in warm soap suds, rinse in clear water and dry thoroughly before using.

Select a soft piece of No. 2 reed, soak the end in water a few minutes, and beginning an inch and a half from the end, cut away the reed on two opposite sides until it looks like a wedge. (Fig. 1.) Take nothing from the width. (See Fig. 2.) Draw the root end of the raphia through the eye of the needle. For fine work use a thread one fourth of an inch wide. For ordinary work a leaf of raphia divided in the middle is about the right size. Place the end of the raphia farthest from the needle between the thumb and finger of the left hand and hold it firmly against the reed an inch from the end. At the end of the reed, bind the raphia

around the wedge shape for one-half or three-fourths of an inch to strengthen it. (See Fig. 3.) Fold an eighth of an inch of the reed against itself once; repeat (Fig. 4). Pass the needle through the centre of the tiny circle and fasten the end securely to the rest of the coil. Continue oversewing the circle until it has been bound to the main reed once all

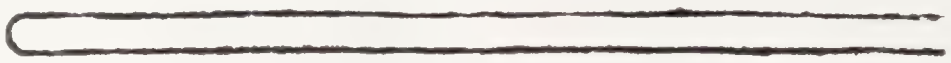


FIG. 1.

FIG. 2.

the distance around, then begin the true stitch—strap, knot, Mariposa, Samoan, or figure eight.

The strap or Deerfield stitch, sometimes called the lazy squaw, is the simplest. It consists of a short and long stitch. (Fig. 5). Wind the raphia around the upper reed once. This gives the short stitch. Bring the needle through towards you under the second reed, over the upper, and through towards you under the upper reed, ready for another short

FIG. 3.

FIG. 4.

stitch. The centre or button looks like Fig. 10. After the centre is formed, widen often enough by putting two stitches in the same space, to make the bottom perfectly flat. A basket to be a success must stand firmly.

The basket is shaped by pressing it into the desired form very gradually as one works. Sew an inch; press the basket into shape. Sew one inch more; press the basket into shape. Continue until it is completed. If the sides are to be vertical, as in the baskets shown at the heading of this article, hold one reed directly above the other. Cut off the left-over reed on a slant, just as if about to splice. (Fig. 6). Make the

slant very gradual. Treat the tapering reed and the one under it as one reed. (See Fig. 12). Oversaw the last reed around the throat of the basket as it gives a strong finish.

When splicing two pieces of reed, cut them on a slant so that they will exactly match. (Fig. 7).

A new thread of raphia is joined by holding the ends of the old and new threads firmly on the top of the reed for an inch and sewing over

FIG. 5.

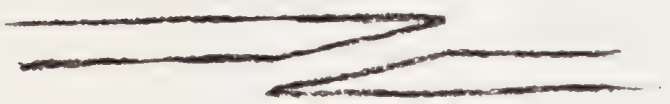


FIG. 6.

FIG. 8.

FIG. 7.

FIG. 9.

them. In the strap stitch, let the last stitch with the old thread be the long stitch. Begin the new thread by winding it twice around the reed for the short stitch.

When using two or more colors, carry the threads not in use along under the stitches; do not cut them off.

If a mistake is made in a stitch, unthread the needle and rip it out. Cut off any little threads of raphia that roughen the surface of the work as soon as they are noticed, as they injure its appearance seriously if sewed in. These trifles often make the difference between a good basket and a poor one.

WORKING DIRECTIONS

Use number two reed for the coil. Make the centre of the basket of natural raphia, the design of gray green. When there are forty short stitches around the centre, begin the design, a spot shaped like a triangle. (Fig. 7).

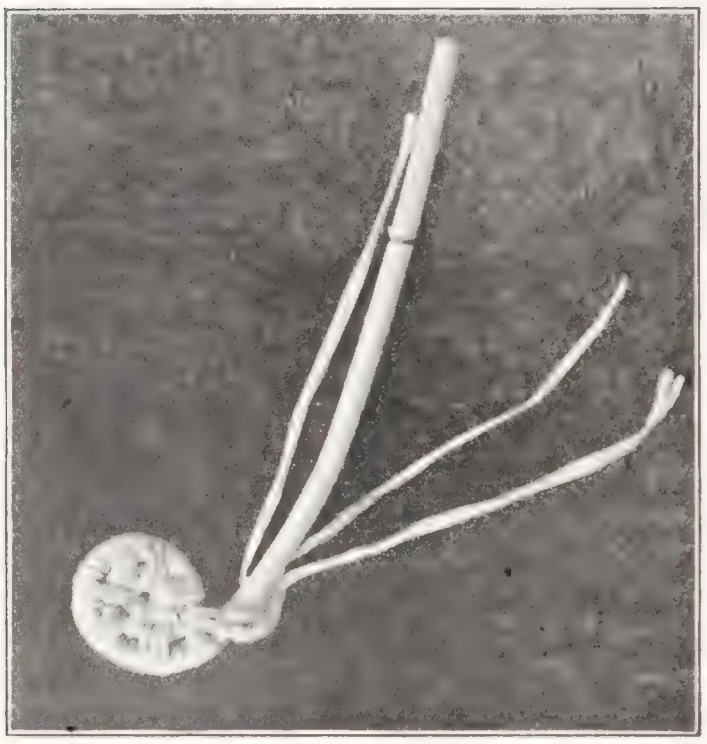


FIG. 10.

First Row. Wrap the green raphia around the reed the distance of five short stitches. This forms the base of the triangle. Take three long stitches. Repeat five times.

Second Row. Take five green stitches over the wrapped space, two white stitches. Repeat.

Third Row. Take four green stitches, three white. Repeat.

Fourth Row. Take three green stitches. The rest will be white. Widen one white stitch on each side of the triangle so that the star or flower form, of which this is a part, will be uniform and the bottom of the basket will lie flat. (See Fig. 11). Repeat.

Fifth Row. Take two green stitches. The rest will be white. Repeat.

Sixth Row. Take one green stitch. The rest will be white. Repeat.

Seventh Row. There are now eleven short white stitches between the apexes of every two triangles. In the middle or sixth stitch, make a green stitch, the beginning of the star form. (See Fig. 11). Repeat.

Eighth Row. Take a green stitch at the right and left of the green. The rest are white. Widen one white stitch on each side of the triangle. Repeat.

Ninth Row. Take one green stitch at the left of the green, one at the right of the green, roll or wrap the space between. The other stitches will be white. Repeat.

Tenth Row. Continue as in the former row.

FIG. 11.

FIG. 12.

Eleventh Row. By counting you will find ten short white stitches across each arm of the star. In the fourth white stitch from the centre edges, leaving two in the middle, make a green stitch. Repeat.

Twelfth Row. Continue the green diamond as before. Make a green stitch before and after the green stitches in the arm of the star. Repeat.

Thirteenth Row. Continue the diamond. Place one long stitch in the centre of the wrapped space to strengthen it. The remainder of the stitches will be green. (See Fig. 8).

Fourteenth Row. Make a long stitch before and after the long stitch in the centre of the diamond. The remainder of the basket will be green.

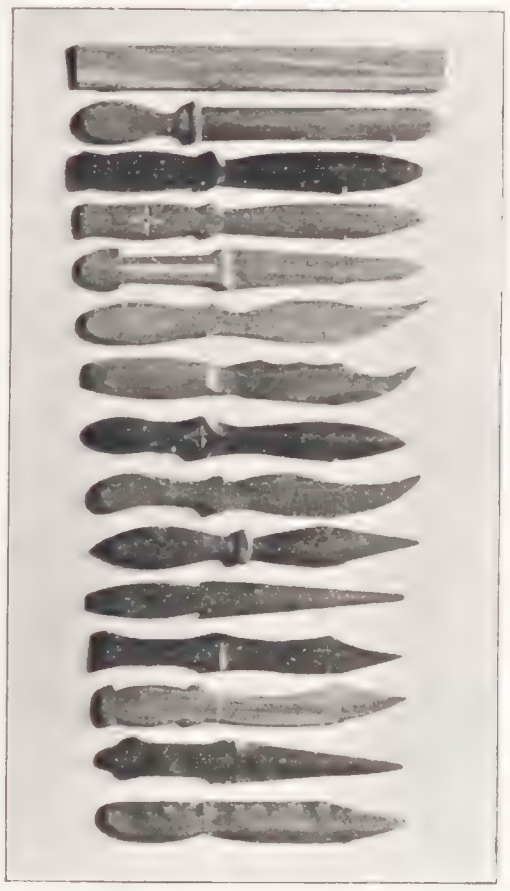
Fifteenth Row. Make the diamond one stitch shorter on each side, that is, begin the upper half of the diamond. Take one stitch in the centre of the rolled space. This gives a diamond of four stitches. (See Fig. 9). Continue to narrow the diamond until it is completed. Three or four rows above this figure, begin to shape the top of the basket. (See Fig. 8).

In this basket two ways of depicting a pattern are shown. The first row of the triangle was rolled, the rest of the pattern consisted of stitches. Some persons prefer not to roll the first row but take the stitches directly into the contrasting color. The diamond shows a third method that may be used. A long stitch began and ended the figure; the space between was wrapped. A fourth method is to roll the entire space occupied by the design, omitting the long stitch at the beginning and the end. (See baskets at the heading of the article.) Nothing troubles beginners so much as introducing a pattern. If one carefully works out a design by each of these methods there are no other difficulties to be surmounted. Wrapped spaces are allowed so long as they do not interfere with the "structural strength" of the basket.

THE BLANK MODEL

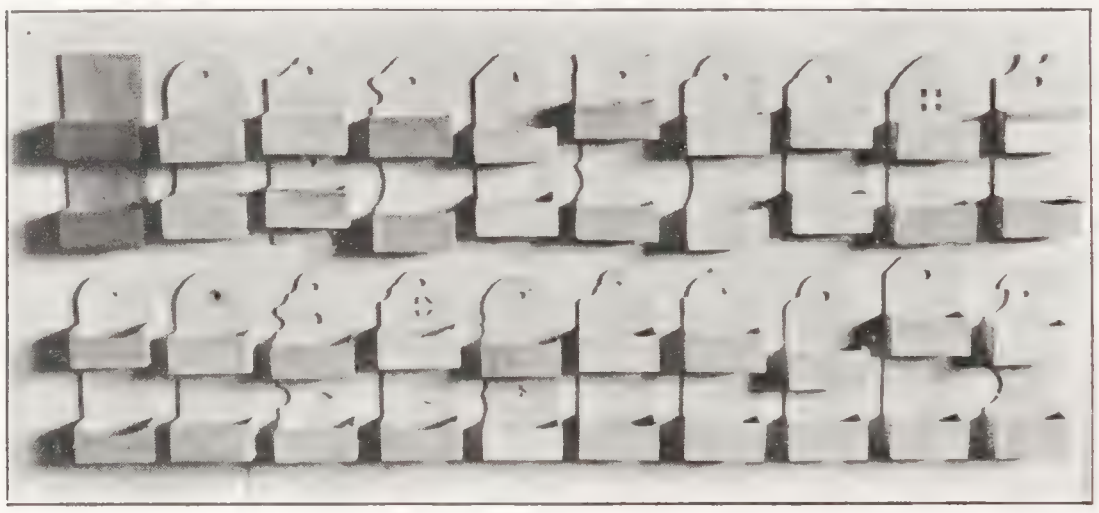
CLARENCE S. MOORE

WHITTLING in the schoolroom has always seemed to the writer a poor form of manual training for growing children, and it was, therefore, with poor grace that he once undertook several classes in thin woodwork. They were large children who squeezed themselves uncomfortably behind the cramped desks and, a request that they be allowed the more healthful exercises of benchwork not being granted, it was necessary to make the best of the situation, for it is often good that one should not have his own way. Freedom of body being denied, we sought refuge in freedom of mind, and thus stumbled upon the blank model. The idea was to secure the greatest possible self-expression without losing the discipline of the more formal work of an ordinary course. We began with a paper-knife. Careful working drawings had preceded each model, and, for the knife, a rectangle nine inches long and an inch and a quarter wide was drawn and carefully dimensioned. Then the children were shown on the blackboard, sketches, purposely rude, of paper-knives of many shapes—broad at the base, at the middle, at the end, straight, curved and wavy—and they were asked to set off a suitable part of the rectangle for a handle; and so the designing began, freehand work being required and the use of draughtsman's curves being allowed only when the design was complete and the boy absolutely unable to draw a true curve without. The design was then carefully dimensioned and scrupulously followed in working out the knife. Copying designs was forbidden. The cut shows the remarkable variety that resulted and, to those who knew the boys, the individuality expressed was really astonishing. The knife at the bottom, for instance, was made by a boy who weighed over two



hundred pounds. His utter lack of artistic ability did not prevent this very perfect expression of himself. It might almost be called a portrait of a fat boy.

The accompanying cuts and drawings will show how these ideas were later worked out in match boxes and pen racks. The drawing of the

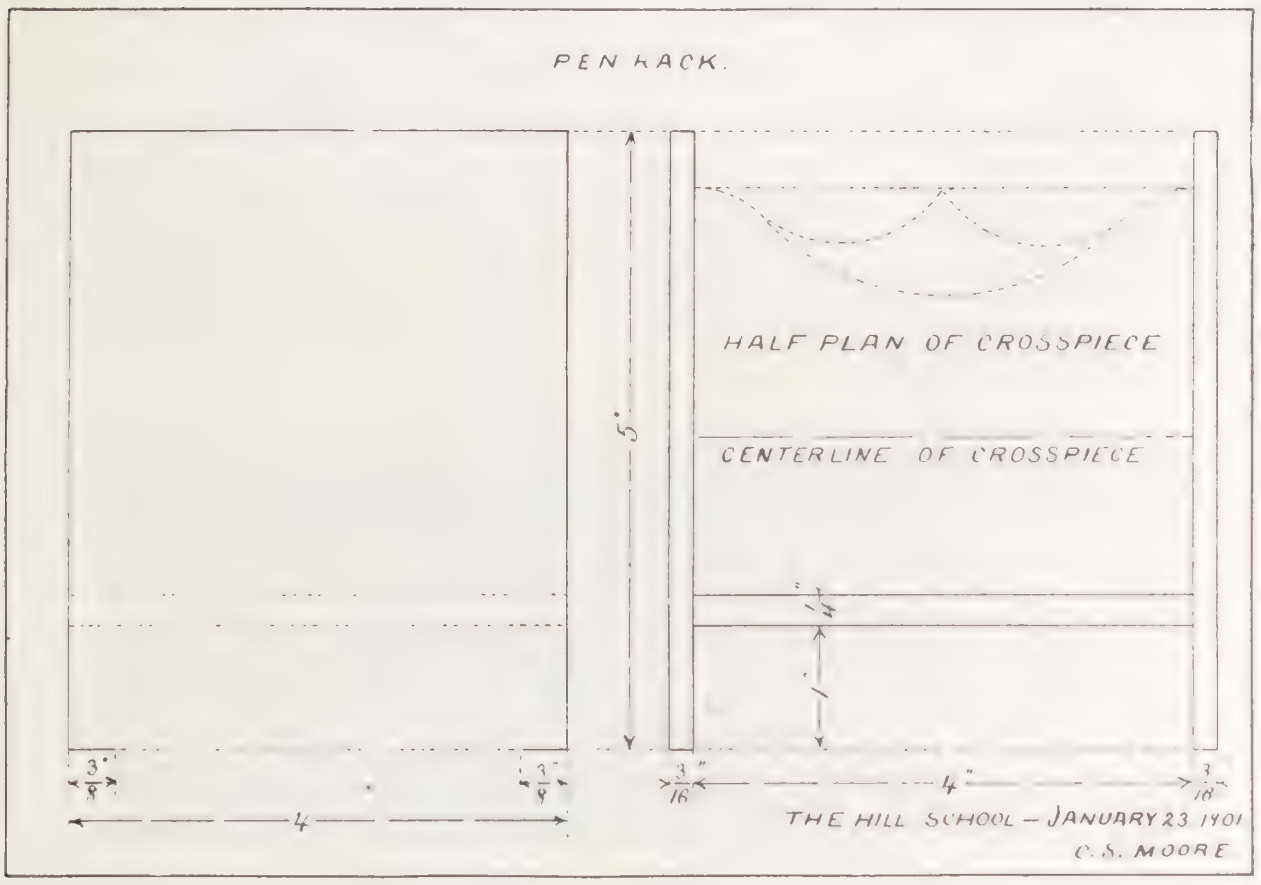


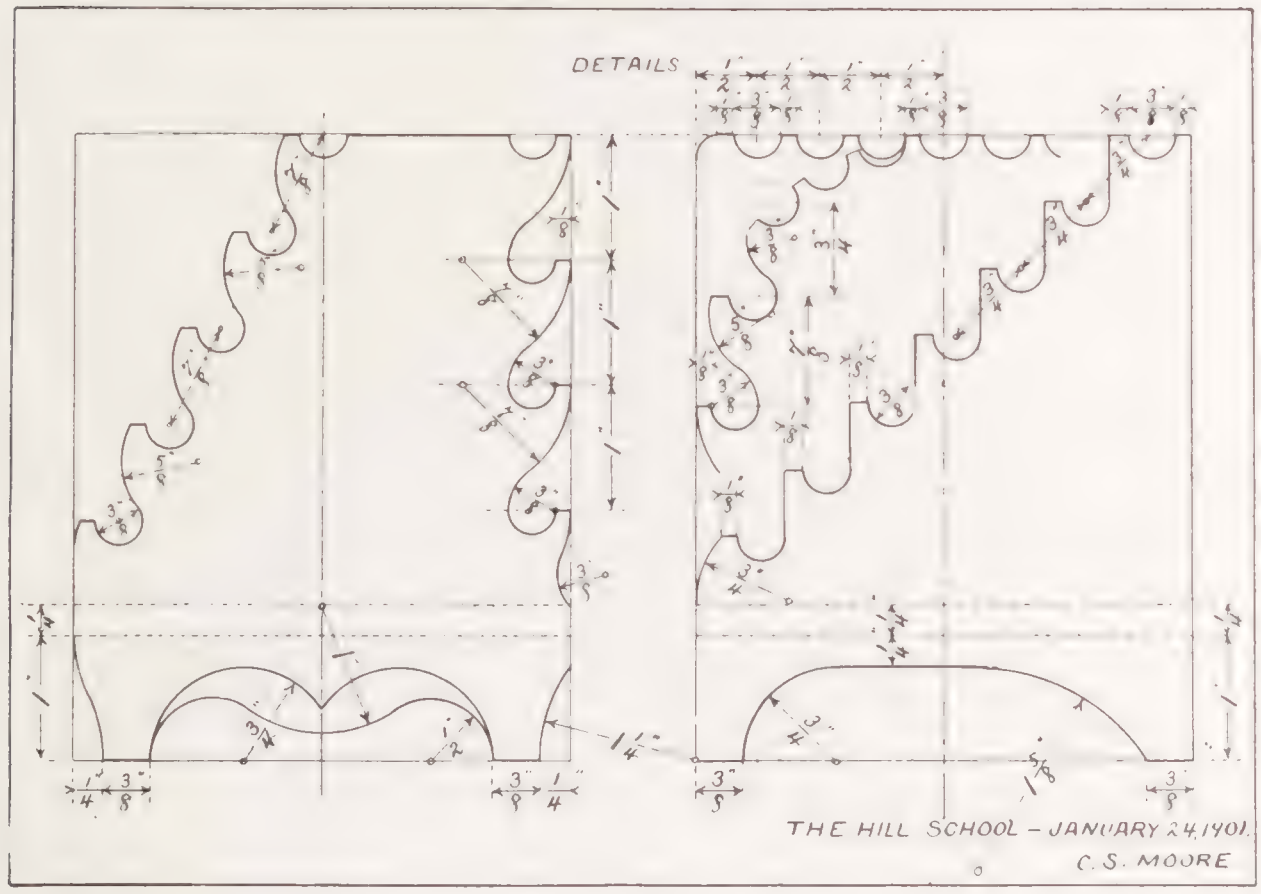
MATCH BOXES.

pen rack is a typical blank model drawing. Each boy was required to complete this drawing before he began to design. Laying out the little notches for the penholders presenting difficulties to some of the boys, this suggestive sheet of details was prepared as a guide. Whenever suggestions were made, the idea was to influence the child as little as possible and to throw him back upon his own resources by the very abundance of the suggestions so that his choice would be perfectly free. His idea having been once expressed in a rough sketch, the teacher's duty was to lead him to the most perfect possible realization of it in a working drawing and, later, in the wood.

An examination of these pictures will show how free the boys were from any particular suggestion and how varied were their conceptions. The results are not all attractive, but that is not the point. They represent the boys who made them, and are as attractive as the honest efforts of those boys permitted. The best ones are, in most cases, entirely the boy's work with little or no guidance from the teacher; the poorest ones always represent some improvement, and usually a very great improvement, over the child's original conception so that in each model the teacher can see growth as well as individuality.

Still later, when the writer was free to do as he pleased, the blank model invaded the regular bench work and the greatest scope was


PEN RACK.
HALF PLAN OF CROSSPIECE
CENTERLINE OF CROSSPIECE
5"
4"
4
THE HILL SCHOOL – JANUARY 23 1901
C. S. MOORE


DETAILS
THE HILL SCHOOL – JANUARY 24, 1901.
C. S. MOORE

given to each boy's capacity. Ability to design found free and often attractive expression, inability often wonderingly disappeared. In designing a book-rack the boys often had no idea whatever as to how to decorate. A monogram would then supply a motive and the boy would be surprised at his own interest, for very few of these unimaginative ones had ever thought of working out their own monograms. As with the pen rack designs, a poor monogram often meant more honest, patient development

PEN RACKS.

than a good one, and represented more of beauty to the eye of its maker. In some rare cases, artistic designs were furnished to careful boys who were utterly unable to design and they were allowed to adapt these to their purposes, but this was avoided as much as possible because a crude design representing the boy's own victory seemed far more desirable than his copy of the best possible design.

As the work progressed, the boys gradually arranged themselves, in the teacher's mind, into the following classes:

1. Boys of high designing ability who invented their own models and not only became sources of inspiration to the teacher and the other boys, but added to the number of models available.

2. Boys of less capacity who needed suggestions of the blank model to draw out their work, when they would show great capacity.

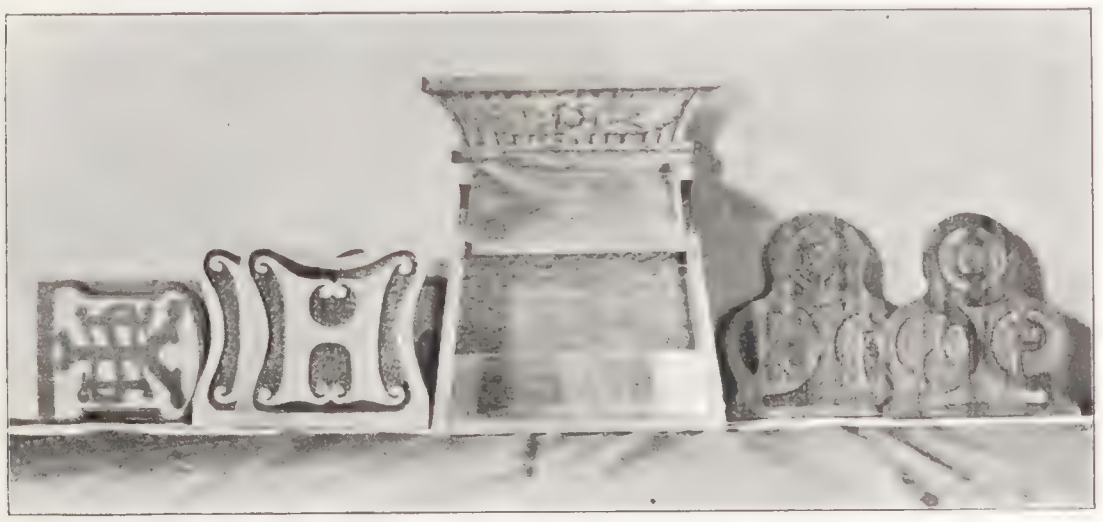
3. Boys who could design with more or less assistance.

4. Boys to whom the blank model could mean only an opportunity to copy the work of others. These were given all the designs available so that they should be obliged, at least, to display their taste and to adapt the designs to their particular ends.

5. Boys whose originality was still wholly dormant. These had either to copy the work of other boys or to fall back upon the formal progressive course of sloyd models which might be likened to a framework

or skeleton upon which this superstructure of free thought was built. The anxiety of the boys to send home their work upon its completion made it difficult to get pictures that would represent more than half of the work done at any particular time, but these groups of models will give some idea of the variety this encouragement of individuality secured.

A recognition of the importance of working drawings to the industrial arts becomes evident to the boys from experience of this kind, for their drawings must be so complete as to contain full information for any workman. Mechanical drawing is thus seen to be a sort of language in itself—almost the only means of expression between the thinker and the worker in any constructive work. The boys, indeed, show great dismay when first confronted with the necessity of making their own designs, but this soon gives place to a genuine interest in designing and to a peculiar attachment to the finished work, while the next design is begun with greatly increased interest and confidence. There is, of course, a good deal of loss in the amount of work turned out—though no loss in quality and accuracy—but there is a great gain in spontaniety, self-expression, and co-operation with the teacher. The ideas developed give a richness and vitality to the work that are rare and the teacher soon finds that the boys have produced a lot of new models that belong to themselves alone. Only a few of them however, will be of use to next year's classes—but this is of no consequence—next year's classes will also design.



A NEW PLANE.

EDWIN W. FOSTER

Manual Training High School, Brooklyn, N. Y.

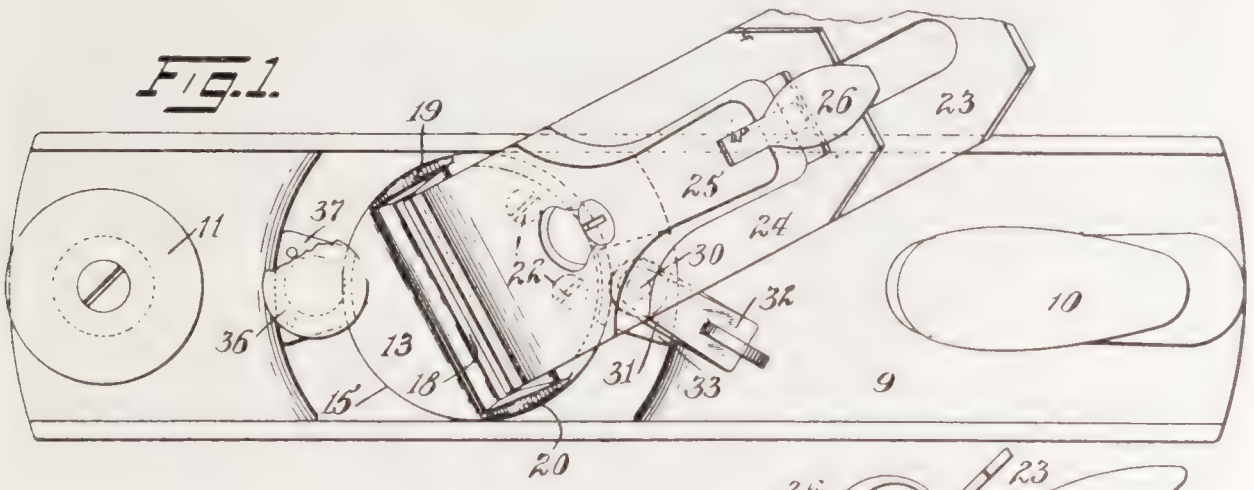
MAN is a tool-using animal. He can use tools, can devise tools; with these, granite mountains melt into light dust before him: he kneads iron as if it were soft paste; seas are his smooth highway, winds and fire his unwearying steeds. Nowhere do you find him without tools; without tools he is nothing, with tools he is all."—*Carlyle.*

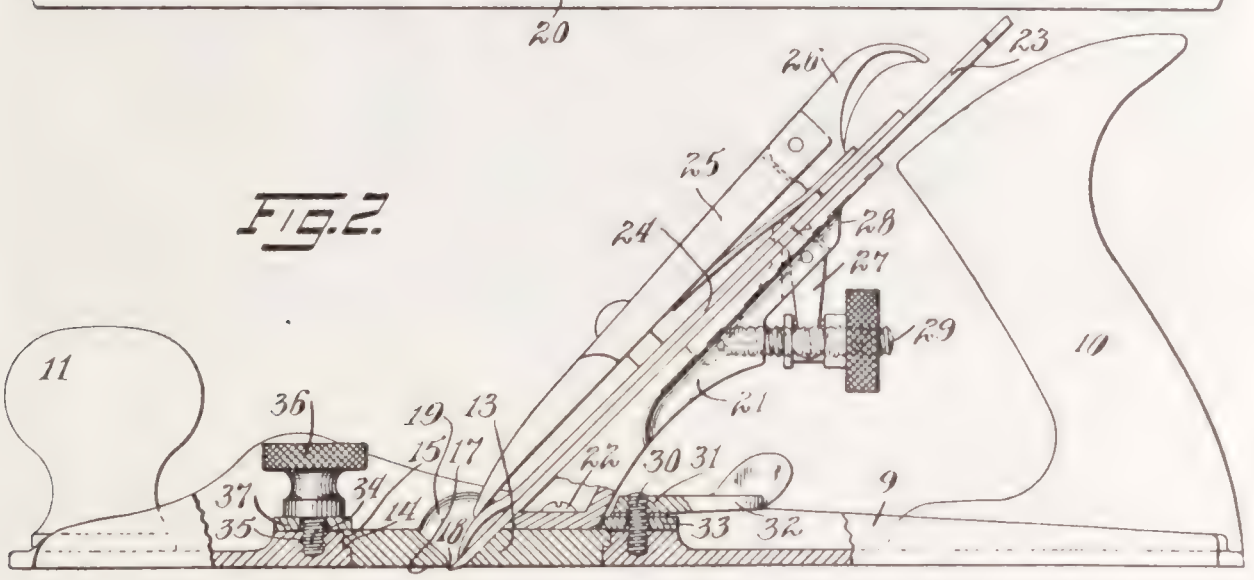
The woodworker does not need his attention called to the advantages of a paring cut over the straight thrust of a chisel edge, nor the general difference between chisel action and knife action. He has learned, perhaps unconsciously, to turn his block-plane at an angle with his work for easier and smoother working and has discovered at the same time that the straightening action due to length in a plane is thereby lost.

It was with some of these facts in mind and particularly the troubles of young students trying to block-plane that the new plane was developed. With a desire to secure a paring action in a plane without using special details in the way of specially shaped plane-iron, cap-iron, etc., the plan was conceived of placing a circular plate in the sole of the plane, to which all the working parts might be fastened, and the whole combination being free to revolve in either direction. In the bottom of the plate or turn-table was cut an opening corresponding with a mouth, similar to that of an ordinary plane. The problem of angularity being solved, it remained to add a shoulder for the purpose of keeping the sole of the turn-table flush with the sole of the plane and means of fastening the turn-table at any desired position.

The woodworker is at liberty to use the plane with the cutting edge in the usual position or to set it at any desired angle at will, the change occupying just one second.

This theory has been found to work out in practice very satisfactorily; in fact, the tool has developed possibilities not expected in the original





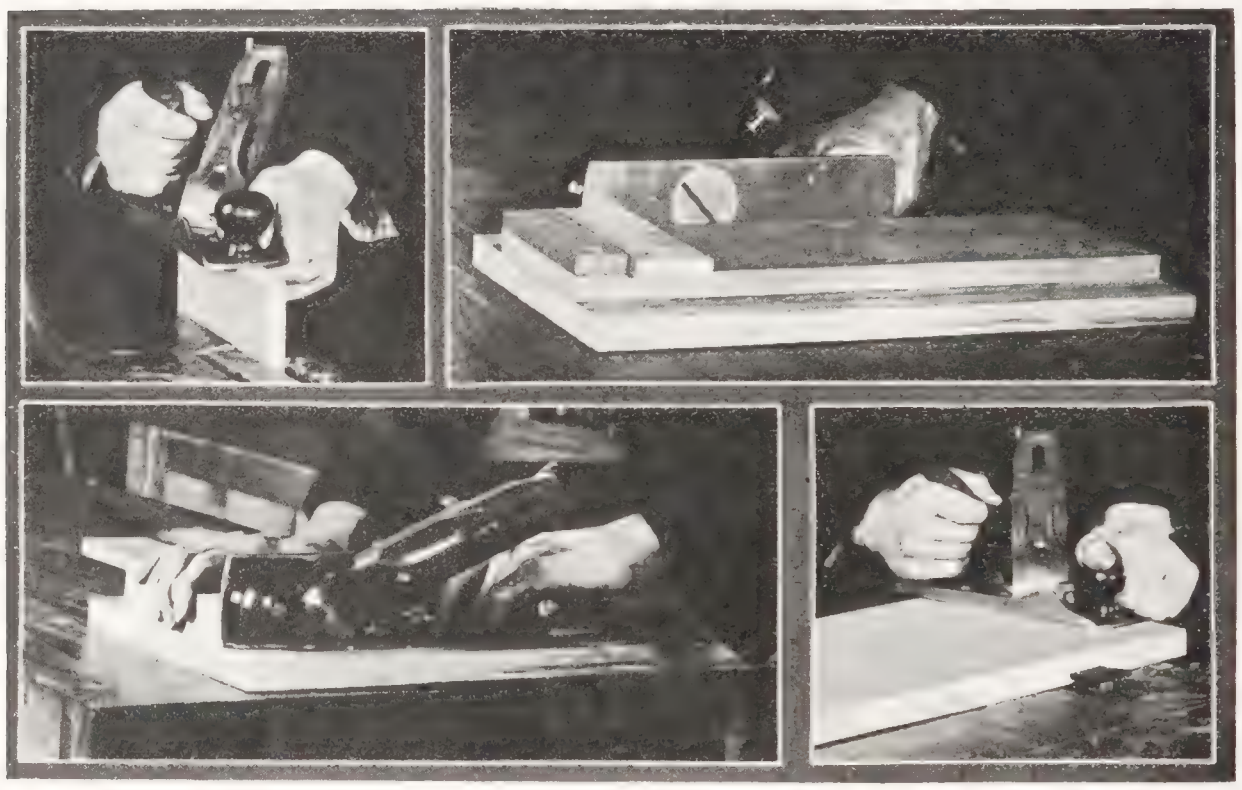
conception. For example, this plane works directly across the grain when the plane-iron is at forty-five degress with as much ease and smoothness as directly with the grain, making it a comparatively simple matter to take out warp and wind.

In fulfilling its original purpose, however, that of planing end grain, its greatest usefulness is found. To be able to block-plane with a smoothing plane without the possibility of knocking off the far corners is a great gain and a satisfaction which needs to be experienced, the length of the sole accomplishing its straightening action at the same time.

Again if the worker prefer shooting-board work, the tool may be adjusted instantly for either a right-handed or left-handed workman.

The loss of width in the cut due to the angularity is more than comensated for, by the greater ease in the working and the smoothness of

the cut. In planing straight forward with the grain, this saving in muscular effort is very noticeable, while the resulting side thrust is barely perceptible at first and after a few strokes the muscles become so accustomed to it that it may be disregarded.



FIGS. 3, 4, 5 and 6.

The drawing of Fig. 1 shows the general arrangement and needs little explanation, the turn-table, plane-iron, cap, clamp and adjustments being self-evident. Adjusting screw 36 and thumbnut 32 fasten the turn-table or loosen it for any desired changes with two movements of the hand, while the adjustments of the plane-iron by means of screw or lever may be made as usual with the turn-table in any position. A top view of the plane at the heading of this article shows an angularity of about 45 degrees; Fig. 3 position for block planing; Fig. 4, position for a right handed shooting board; Fig. 5, a left handed shooting board; Fig. 6, planing across the grain.

EDITORIAL.

Industrial Education

The attention that is now being given to all phases of industrial education, not only by teachers in this field and those intimately associated with them, but by publicists, students of social science, and men of affairs in general, cannot have escaped the notice of any teacher of manual training. It is by no means a new subject, but it seems at last to have taken its place among the great subjects of the day. The most valuable recent contribution to this subject is unquestionably the report of the Massachusetts Commission on Industrial and Technical Education, issued in April, 1906. The chairman of this Commission was Col. Carroll D. Wright, formerly United States Commissioner of Labor, and now President of Clark College, Worcester, Mass. Serving with him on this Commission were the Hon. George H. Martin, Secretary of the State Board of Education, Hon. Warren A. Reed of Brockton, Mrs. Mary Morton Kehew of Boston, John Golden of Fall River, Nathanial T. Bowdich, John P. Murphy, Simon B. Chase, and Geo. E. Keith. This Commission was appointed by Governor Douglas in accordance with legislative enactment recommended by himself, and its function was to investigate the need of industrial education and suggest a feasible plan for inaugurating it. Neither sufficient time nor money was given for an exhaustive study of the subject; but too much cannot be said in praise of the very suggestive and valuable report of the work of this Commission. It has obtained, and deservedly so, a very wide circulation.

The Commission appointed as its agent in making investigations Dr. Susan M. Kingsbury, an expert sociologist and lecturer at Simmons College. Dr. Kingsbury made a study of the social and economic conditions surrounding the homes of the laboring people in a number of cities. Her report, which is appended to the report of the Commission, was an original and most valuable contribution to the subject of industrial education. It enabled the Commission to organize its thought upon the rock-bottom facts connected with the actual conditions among the laboring people of manufacturing centers. It is impossible here to enter upon a discussion of Dr. Kingsbury's observations. Suffice it to say that the two most notable facts discovered are these, viz: first, from two to four

years of the life of working children—i. e., from 14 to 16 or 18—may be reckoned as wasted years so far as their industrial training is concerned; second, the feeling in the homes of the workers towards the proposed industrial schools is altogether favorable.

The main part of the report opened with a brief historial survey of the educational system of Massachusetts, tracing its development, outlining the educational laws of the state which had at different times expressed the thought of some of its wisest citizens and fairly bringing the people of the state to account because, with the single exception of Springfield, the cities and towns of Massachusetts have not taken advantage of existing laws permitting industrial and technical education. It is a good commentary on the inadequacy of mere statute law to meet the needs of any community when a community as intelligent as that of Massachusetts stands still in the face of a great need and asks for more legislation to help it meett hat need, although apparently it already has, and has had for many years, law enough to enable it to do all that probably can be done.

The obvious answer to such a commentary as this is that statute law, after all, depends upon public opinion for its enforcement. But in this instance public opinion does not seem to have been altogether in support of an educational policy, the tendency of which seems to have been at variance with the industrial development of the state. One of the most useful things the Commission did was to determine the attitude of the public mind toward the modern school system. They gave twenty public hearings in the twelve principal cities of the state. They discussed the educational question from the point of view of general training as well as from the standpoint of special training for the vocations. In this way they gained several distinct impressions. One of these impressions is stated as follows:

> The Commission was made aware of a growing feeling of inadequacy of the existing public school system to meet fully the needs of modern industrial and social conditions. The opinion was expressed by many speakers that tne schools are too exclusively literary in their spirit, scope and methods. Where there was not a pronounced opinion, there was a vague feeling of dissatisfaction with results. This does not imply hostility. Everywhere the Commission found the people loyal to the purpose of the schools, and proud of the advanced position which the State has held, and they do not complain of the cost. They hesitate to criticise and are far from desiring any revolutionary change; but they are inquiring with open minds whether some modifications may not be possible, by which the schools may reach in a more practical way the great body of children and youth.

The report admits the justice of this criticism and points out very clearly how the faults in the public schools of the state have come about in the natural development of the system of education. It speaks of the two-fold character of the education of the earlier times by means of which intellectual and general training were given by the schools and industrial and professional training by apprenticeships. It shows that the present inadequate educational system is due to the fact that the balance between these two earlier systems has not been maintained. The progress of science and invention has so changed the character of the industries as to bring about the natural death of the apprenticeship system and with that the old forms of industrial education. On the other hand, the same advance has stimulated the development of the other side of the two-fold education of the earlier times. The schools have increased in importance; special schools for the professions and for the training of engineers have been founded; common schools have gradually claimed more time; the school year has been lengthened, attendance made compulsory, and the school age limits raised. The apprenticeship system has suffered all the loss; the school has derived all the gain from the social and economic changes that have come, so that almost imperceptibly in place of the once two-fold and fairly rational system of education we now have a one-sided plan in which children are almost wholly separated from the activities of real life. The report does not fail to note also as a fact which is of the greatest importance, that the effects of the abandonment of the apprenticeship system have all been aggravated by the increased complexity of social conditions, due to centralization of the population in cities.

Summing up the situation, the report speaks as follows:

> The effects of these changes repeatedly brought to the attention of the Commission are not most serious where we might naturally expect, in a lack of manual efficiency, though that is marked, but on the intellectual and moral side. There is a one-sided sense of values, a one-sided view of life, and a wrong attitude toward labor. Not having any share in productive labor and being out of touch with it, the youth have no standards by which to measure time or possessions or pleasures in terms of cost. Many persons believe that about this point center some of the gravest of present-day social problems.

Speaking of the two distinct attempts that have been made by municipalities and by the state to retrieve a part of the lost vocational training by giving courses in industrial drawing and manual training, the report claims that these well intentioned efforts have fallen too largely into

the hands of art teachers and have so lost, for the most part, the industrial character they were originally intended to have. Its arraignment of manual training is as follows:

> It has been urged as a culture subject, mainly useful, as a stimulus to educational effort—a sort of mustard relish, an appetizer—to be conducted without reference to any industrial end. It has been severed from real life as completely as have other school activities. Thus it has come about that the overmastering influence of school traditions have brought into subjection both the drawing and the manual work.

This last statement is a strong one, but it undoubtedly expresses just criticism of much that has been done in the schools under the name of manual training. I am inclined, however, to take exception to the sweeping nature of the indictment, though not to the spirit of it. All forms of hand-work that have been introduced into the schools have suffered with other subjects from the insufficiency of the doctrine of formal discipline and training which has hitherto held too much sway. Manual training teachers in the past have invariably been urged to rest the philosophy of their work upon the disciplinary and formative value which it certainly has and to give comparatively slight attention to the subject-matter. This they have done in large measure and have as largely lost the rich opportunities of their calling. Too much attention has been paid to the development of skill in very narrow lines, with little concern as to breadth of knowledge or insight into practical conditions. But the truth has slowly gained ground that manual training means not only a method of teaching but something to be taught—that it is, in fact, the representative in the school of the great field of modern industry.

In all discussions of this subject it must not be forgotten that the term "industrial education" has two distinct meanings. It is commonly used to refer to that form of training which has for its main object the security and development of the industries, which, of course, will require intelligent and skilful workers in those industries. That is the meaning of industrial education abroad. There it is a national matter, and the purpose of the state is to preserve and improve the industries of the nation. The workers are to be trained to this end. They will, of course, receive instruction and be benefited thereby, but the advantage to the individual workers is a matter of secondary consideration. Accordingly, they receive a training which, though thorough, includes very little if anything beyond what they will actually need in the industry for which they are being fitted. This is the theory of the foreign trade school which has become such an important factor in developing the in-

dustries of Germany and France that many American economists fear that our industries will be imperilled if we do not establish similar schools.

From another point of view industrial education is looked upon as an effective and useful method of imparting general information and training. It is assumed that the school is a proper place in which to employ many of the activities and powers which are found exercised in the life and industries surrounding the school and likely to be continued in any given community. The school is considered a part of life in a real sense so that it may the better carry out its main purpose, which is to teach children how to live. If it should teach them also, in some measure at least, how to earn their living, no great harm would be done. But that is not the main object; and if the industries should realize the effects of such training in greater efficiency, intelligence, and skill in the youth from such schools who enter the trades after the school days are over, it is so much the better for the industries. But the greatest good of the individual pupils of these schools is not to be lost sight of at any point. All the principal studies are to be retained and even enlarged by illustration and application in the new subjects of instruction that are introduced. The main idea is to make the industries contribute to the work of the schools in order that the schools may not in the least sense be separated from life but become and remain a very vital part of it.

To sum up the contrast in a word, industrial education through trade schools is made to serve the interests of the industries. In manual training and technical schools, on the other hand, including the work for girls in the household arts, the activities of a normal home life and fundamental principles of modern industries are made to serve the cause of education in the broadest sense of the term. The distinction is a vital one. Both kinds of schools, however, undoubtedly have their place in a rational system of education.

That the distinction between the two radically different forms of industrial training was not more clearly drawn by the Commission is probably due to the fact that the chief duty imposed upon them by the Legislature was to suggest an educational policy for the industrial development of the state. They welcomed any means that might properly contribute to this end. While they must have recognized that special schools for the various trades would be the most direct method of accomplishing the result which they had in view, the general tenor of their report shows

that they were impressed with the great need of a more general industrial intelligence. Their real attitude toward the whole matter is clearly shown in two of their final recommendations which we quote:

There seem to be two lines in which industrial education may be developed —through the existing public school system, and through independent industrial schools. In regard to the former, the Commission recommends that cities and towns so modify the work in the elementary schools as to include for boys and girls instruction and practice in the elements of productive industry, including agriculture and the mechanic and domestic arts, and that this instruction be of such a character as to secure from it the highest cultural as well as the highest industrial value; and that the work in the high schools be modified so that instruction in mathematics, the sciences, and drawing shall show the application and use of these subjects in industral life, with especial reference to local industries, so that the students may see that these subjects are not designed primarily and solely for academic purposes, but that they may be utilized for the purposes of practical life. That is, algebra and geometry should be so taught in the public schools as to show their relations to construction; botany to horticulture and agriculture, chemistry to agriculture, manufactures and domestic sciences; and drawing to every form of industry.

The Commission in its consideration has endeavored to preserve the integrity of the public school system, to enrich it along industrial lines, and extend it along vocational lines through independent industrial schools. This seems necessary because the present public school system is aimed primarily to secure cultural and not industrial or vocational effects, while the departure recommended by the Commission relative to independent industrial schools secures a development of the principles of industrial instruction, and is entirely in accordance with the policy to which the state is already fully committed through its support of normal schools, art schools, institutes of technology, and textile schools. The act of 1872, except in the City of Springfield has remained a dead letter, but the state aid provided by the foregoing plan would, the Commission believes, induce other municipalities to enter upon a like beneficent experiece.

When the Douglas Commission submitted its report to the Legislature, their term of office expired. Their recommendations in the main were adopted, a new Commission was authorized and appointed by Governor Guild early in the fall of 1906. It is almost too early to speak of the work of the new industrial commission. They have not yet made a declaration of policy, but they have manifested considerable activity, have consulted with labor unions, and have endeavored apparently to get in touch with public opinion on the subject which they have in hand. They have also appointed a secretary, giving him a large salary which should be a guarantee of a high purpose to do the best that can be done for the cause of industrial education in the state. Friends of the cause will await anxiously their first report and still more anxiously will they look

for results in the educational field. There are some who doubt the feasibility of attempting to develop industrial education through state initiative and management, inasmuch as it must depend upon legislation, which it is thought will be difficult to accomplish. But there are many enthusiastic supporters, and the time is ripe. The present Commission has the greatest opportunity to develop an educational reform that Massachusetts has seen for many years. Let us bespeak for it the inspiration of right ideas and the loyal support of all friends of the modern school.

C. F. W.

The London Congress

The third International Congress on Art Education will convene in London in the summer of 1908, and every patriotic teacher of drawing in America wants our country to be well represented in that congress. The first congress of this character was held in connection with the Paris Exposition of 1900; a second was held in Berne, Switzerland, in 1903; and now that the third is to be in an English speaking country it seems much nearer home. We shall soon be hearing of the large plans that are being made to welcome American teachers, but just now we need to hear of the plans for sending a suitable and representative exhibit. Our government does not help in such matters and so we must depend upon ourselves not only for ideals, organization, speakers and exhibits, but we must also pay the bills. At the Berne Congress there was appointed the following American committee: James Hall, New York; Charles M. Carter, Denver; and Wm. Woodward, New Orleans. This committee has selected the following Advisory Committee: Mary C. Wheeler, Providence; Henry T. Bailey, editor of School Arts Books; Cheshire L. Boone, Montclair, N. J.; Solon P. Davis, Hartford; James P. Haney, New York; J. Frederick Hopkins, Baltimore; Leslie W. Miller, Philadelphia; Walter S. Perry, Brooklyn; and Walter Sargent, Boston. It is the desire of this committee to have Amererica's presentation at the Congress represent the whole country and to have every teacher of drawing take a personal interest in it. The coming joint meeting in Cleveland ought to stimulate such interest, for it will bring together the work and the teachers from two of the three great sections of our country.

In addition to providing speakers and an exhibit the committee has decided to publish a "Conspectus of American Art Education." As editor in chief of this volume the committee has chosen a man eminently qualified for the task, as all readers of this Magazine well know, Dr. James P. Haney of New York City. Under his guiding hand we are sure the volume will be a credit in every way.

But the great problem at the present time is the financial one. The committee will need not less than $5,000 and it invites every teacher of drawing or the manual arts, as well as every friend of art education, to contribute something, even though it be a small amount. Such contributions may be sent to Cheshire L. Boone, Director of Art and Handwork, Public Schools, Montclair, N. J.

During the last three months America has lost two able men identified with the cause of manual training. On the 28th day of January, Wilbur S. Jackman, professor of natural science in the School of Education of the University of Chicago, and principal of the University Elementary School, died suddenly, following a severe attack of pneumonia. Since the death of Colonel Parker, Professor Jackman has been the editor of the *Elementary School Teacher*, one of the publications of the University, and has constantly set forth the claims of manual training to a large place in public education.

Late in January we received word that William W. Murray, superintendent of manual training at the Mechanics' Institute, Rochester, N. Y., in a temporary fit of insanity had committed suicide in Norfolk, Va. where he had gone to regain his health. Mr. Murray had been overworking and this was not the first time he had been obliged to take a forced rest. Mr. Murray was a most earnest and efficient worker and an enthusiastic student of the problems of manual training. Rochester and New York State has indeed lost a valuable man. At a special meeting of the board of directors of the Rochester Athenaeum and Mechanics' Institute held Tuesday afternoon, January 22, 1907, the following memorial was unanimously adopted.

The board of directors of the Rochester Athenaeum and Mechanics Institute desire, in this special meeting called for the purpose, to put on record their deep regret over the lamentable death of Mr. William W. Murray, the superintendent of the department of Manual Training in the Institute, and to express to his surviving family the feelings by which they are animated. We have always appreciated the invaluable work done by Mr. Murray in organizing his department, in building it up and in improving it constantly until it had reached its present high degree of excellence. We feel grateful to him for what he did, and in his death we mourn the loss of an esteemed friend and associate.

ASSOCIATIONS

SCHOOL CRAFTS CLUB

A meeting of the School Crafts Club was held at Hotel St. Andrew on December 7th, 1906, the topic of discussion being the significance of the Manual and Applied Arts at different school ages.

Eli Pickwick, who read the first paper, said that any scheme of work, to be of value, must be adapted to the capacity of the child at all stages of his development, must be linked to his past experience and have a definite bearing on the future. The child at first works for the love of working, and later becomes interested in the product of his labor. In the grammer grades the work should offer opportunity for the development of skill in the use of various tools and materials, should satisfy his desire for knowledge and cultivate his esthetic taste. In the high school the work, while adapted to the special character of the school, should be undertaken in the spirit of the craftsman, combining good design with excellence of workmanship.

Handwork from the standpoint of primitive life was discussed by Leonard Wahlstrom, who said the study of primitive industries in connection with handwork is based on the culture epoch theory. Processes in the development of tools are re-in-vented and typical occupations are studied in connection with the various stages of race development. While this method may be, and sometimes is, carried too far, there is much valuable suggestion in it for teachers of all grades.

Egbert E. MacNary spoke of the neighborhood and home as a basis for handwork in the school, quoting the work at the Speyer School for example. There the children fit up miniature "flats" with all the appropriate furniture and decorations. In the fourth grade articles for actual use at home are made, and in many instances home conditions are appreciably improved through the influence of the school.

The modern industry basis was the theme of a brief talk by H. C. Pearson, of the Horace Mann School. There handwork in the primary grades is done through the evolutionary approach, but the vital thing is the final comparison of primitive methods with the industries of the present day.

E. D. Griswold spoke of the formal exercises, his opinion being that such work has its value, though it should not be used to the exclusion of other lines. It helps the pupil to see the necessity of carefully planning his work and of doing things in correct order.

Wm. Noyes dealt with the question of handwork in the grammar grades from the standpoint of modern industries. He believed it important that pupils in these grades should get correct notions of the present-day industries. We should guard against the error of putting emphasis upon incidentals instead of essentials, and not lose sight of the intellectual content of the work.

A. W. Garritt held that the useful model, as opposed to the abstract exercise should be used in the grammar grades. The latter may be used in a technical course.

Among "useful models" might be included toys and games as well as things for use in the home and the school.

In discussing the Decorated Model, Wm. A Worth said we see in it the only place in the elementary curriculum where art, through design, touches the boy in a practical way. Mr. Worth recommended decorated models of thin wood made with the knife for children about 12 years of age.

Speaking of applied art in the high school, James Hall said that while it is desirable to have various materials to work with it is not essential that there be many. All principles of art, for example, may be tauget in metalwork.

Speaking of the adoption of technical methods in the high school, W. E. Stimpson said he believed all work should be done according to the most approved methods. If we would know the best methods in any given line of work, we should go to the man who makes his living in that line.

Chas. B. Howe, who had been asked to speak of a course of manual training for the high school, which should be neither distinctly technical nor of the arts and crafts character, but planned solely for its educational value, said that a course aiming to be "educational" and nothing else would not be even that. There is really no conflict between the utilitarian and the educational.

Chas. F. Binns, of the Alfred School of Ceramics, in a brief address on "Technique in Craftsmanship", dwelt upon the value of ideals. The imagination should be stimulated by a study of the best that has been done in the past. Mr. Binns also advised a habit of self-criticism in the student. Work should be done to one's own satisfaction whether it is to be seen by others or not. Here again much may be learned from the work of other days.

The second meeting of the Club was held at Hotel Chelsea, on Friday, January 11th, the evening's proceedings beginning with a dinner. The first speaker, Prof. Charles R. Richards, whose address appears in full in this issue, was introduced by Arthur W. Richards, chairman of the evening.

WHAT THE PUBLIC SCHOOLS CAN DO TOWARD INDUSTRIAL EDUCATION.

Dr. Thos. M. Balliet, speaking on this subject, reviewed the public high-school system as at present organized. The high schools are divided into three classes—the literary, the commercial and the manual training or technical high school. The addition of a little shopwork (which *every* high school should have) to the literary high school will not make it a technical school. The technical school should train a class of men to come between the superintendent and the workman. It should have its curriculum adapted to the needs of the students. The teachers in such a school must be men who are masters of their trade. It should open its shops in the evening for the benefit of those who work during the day. Teachers should endeavor to give men what they come for, not attempting to force the systematic methods of the day school upon them. Students should be grouped according to their occupations and according to their ages.

Our day schools, in Dr. Balliet's opinion, need re-organization. As at present organized, all pupils must keep step throughout all grades. Some one had wondered that Benjamin Franklin had accomplished so much, not having gone through all the grades at school. The speaker doubted whether Franklin could have accomplished so much if he had gone through the grades. Abraham Lincoln escaped it. The boy

who goes to work at sixteen should be sent to a school more suited to his needs than the last two years of the grammar and the first two of the high school. The manual-training school should put in as much academic work as the student will stand and let the academic studies conform to the particular line of technical instruction selected.

WHAT THE TECHNICAL SCHOOLS CAN DO TOWARD INDUSTRIAL EDUCATION was ably set forth by Louis DeF. Downer, who expressed his belief that the day trade school which will be open to the graduate of the public grammar school is the crying need of the present industrial situation. Parents as a rule, see no economic advantage in keeping their boys at school after they are fourteen years of age, so the boys go out to earn their living at some unskilled occupation. Let the parents once realize that the trade school means a road to a trade—that it represents the difference between twelve dollars a week and four dollars a day, and they will be ready to make some sacrifice to send their children to such a school. As an indication of the demand for trade instruction Mr. Downer cited the fact that 175 applicants for admission to the plumbing department of the New York Trade School were turned away this year. Trade schools in this city are running on a money-making basis for their promoters. The best examples of such schools are the Coyne School, on Tenth avenue, and the School of Electrical Trades on Seventeenth street. In Pittsburg, the Carnegie Technical Schools have 1,200 students and 5,000 applicants for admission. Further facts and figures were quoted indicating the popular demand for trade schools and pointing to the conclusion that they must be supported by the state.

Edward F. Caldwell, who was to have spoken on what the manufacturer can do towards industrial education, being absent, the chairman called upon Mr. Geo. Fletcher, superintendent of the technical branch of the Department of Agriculture and Technical Instruction for Ireland, to address the meeting. Mr. Fletcher spoke of the great change which is coming about in our educational system. Not long ago the prevailing idea was that education was for the few, the end being mental culture; now we are beginning to realize that education should fit for life, but we are not yet wholly free from tradition. In the past we thought only of intellectual training; now we are endeavoring to train the executive powers as well. In our technical schools we have been thinking mainly of the training of engineers; we must now consider how to make provision for the rank and file of our workmen. One difficulty is that of directing the studies of pupils so that they may specialize in the lines which will be of most use to them. There is a tendency in London, Mr. Fletcher said, for schools of special instruction to take the place of the polytechnic type.

In the course of a general discussion of the trade-school idea, Dr. James P. Haney spoke of the Hebrew Technical Institute, where boys are fitted for trades and the instruction is of the best, but the school seems unable to hold boys through a four-years course.

Mr. Downer did not consider this a typical trade school, the manual-training idea being held largely in view. He cited the system existing at Hoe's printing establishment as an example of a survival of the apprenticeship system. Academic instruction is also given there.

Wm. I. Kaup said that if the apprenticeship system is not entirely dead it has failed. It created no ideas. The Hoe shop turns out a Hoe mechanic. The manufacturer demands a school of instruction and construction where the man is the product.

W. F. VROOM.

MANUAL ARTS AT MINNESOTA EDUCATIONAL ASSOCIATION DECEMBER 26-29.

At the Range Teachers' Association held in November at Duluth, it was decided to organize a Manual Arts Round Table this year at the State Association. Permission was granted by the officers and the following sessions were held:—

Wednesday at 2 p. m. the Round Table met at the city hall with Geo. M. Brace of Duluth, chairman; Miss Florence Pettingill, of Superior Normal, read a paper discussing "How much scientific work should be given in High School Domestic Science." The contention was that a thorough course in chemistry was necessary to good work in the science of cooking, and that the scientific side of the work should not become too technical, and should not occupy too much time, so as to exclude any of the practical.

Mr. Moore, of the Minneapolis schools, read a paper on "Manual training and the classroom," emphasizing the importance of classroom recitations preceeding and following the benchwork. Many schools omit this work entirely and it is certainly a valuable part of the training, as it requires the boy to stand on his feet and explain in good Englsh either what he is going to do, or what he has done, and how he did it. Mr. Painter, supervisor of manual training, Minneapolis, spoke of "Problems in group work," showing the possibilities of handling larger classes in this work by appointing foremen who shall take charge of a group of boys, all of which are engaged in making one project. (This has been tried with great success at Duluth).

"The application of domestic science in the household," was handled very ably by Miss Nellie Richards of Minneapolis. Mr. G. G. Green of the Moorhead State Normal School, presented a paper on "Manual Training in graded schools," which was illustrated by an elaborate exhibit. Mr. Greene showed that the work can be made to assist the work in geography and history. He showed that it can be made very inexpensive by using such materials as corn husks, straw, twigs, grape baskets and waste lumber. This paper was very instructive and interesting, and gave those who heard it many new suggestions and ideas.

On Thursday afternoon at the mechanical engineering building the following papers were read:

"Is the time ripe for the state to establish industrial secondary schools, or industrial departments in our high schools," by J. E. Painter of Minneapolis. "Can manual training be successfully carried on without a special teacher?" By R. F. Beardsley of Chicago. '-What credit towards graduation should be given for high school manual training, including drawing?" J. J. Flather, Professor of mechanical engineering, University of Minnesota. "What effect has manual training upon the moral development of the child?" J. A. Hancock, Moorehead Normal school.

Each of the above papers was discussed at the close of the program by many educators, some with the view of obtaining more information, and some for the purpose of dissenting from the ground taken in the papers. Principal Weitbrecht, of St. Paul Mechanic Arts High School, strongly resented the stand taken by Professor Flather in regard to entrance requirements for the college of engineering, citing many cases where boys were required to do comparatively simple work in the University when they were capable of doing really complicated work, and had done so, in their high school course. Instances were enumerated where pupils were denied advanced credits at this university, who had gone elsewhere and had been given advanced

standing, and made a name for themselves as capable men. There seems to be an urgent appeal that the University authorities and school principals in this state get together on some common ground in regard to the value to be accorded high school manual training, or both institutions are bound to suffer. Mr. Beardsley's paper brought out considerable inquiry as to the success of the school he represents, and it is evident that in order to teach manual training by the correspondence system a *good* teacher is necessary, and any *good* teacher who expects to teach the subject will make an effort towards getting a preparation at some professional school during vacations or by diligent self-instruction. The question was raised whether it was proper to exploit commercial enterprises at these meetings.

At the close of the meeting Geo. A. Franklin, superintendent of schools at Austin, was elected chairman for next year, and Geo. M. Brace, of Duluth, secretary. It is to be hoped that next year some manual training man of national reputation can be secured for a paper at one of the general sessions, and that a suitable place will be provided for an exhibit of work. There has been so much interest in manaul training in this state the past year that a number of schools have introduced it, and many more are planning its introduction this year. The towns on the Mesaba and Vermillion ranges are forging to the front with the finest departments in the state, and we look for a very successful meeting next winter. In view of the fact that this was the first round table attempted at these meetings—those who attended considered it an unqualified success.

GEO. M. BRACE,
Duluth, Minn.

THE ILLINOIS MANUAL ARTS ASSOCIATION.

On Friday and Saturday, February 15 and 16, at Lewis Institute, Chicago, the Illinois Manual Arts Association held its fourth annual meeting. This was the largest and most enthusiastic meeting the Association has held. Friday was spent by the visitors in looking over the school and in inspecting the exhibits that had been arranged at Lewis Institute. Of special value were the exhibits of books arranged by John Lord Bacon and of equipments on the first floor of the engineering building. Over one hundred fifty of the latest and most approved books on subjects connected with the manual arts were spread upon tables where they could be leisurely examined. The books were classified and each visitor was presented with a 7-page typewritten mimeographed list of titles showing just what the exhibit contained. The equipment exhibit included commercial displays by a number of manufacturers of drafting instruments and supplies, benches, tools, and manual training equipments generally. Out-of-town visitors especially appreciated these exhibits and they were studied with a great deal of care.

At five-thirty o'clock the members began to assemble in the lobby on the main floor for the "social hour" just preceding the banquet. Promptly at six-thirty o'clock the committee led the way to the lunch room where the annual banquet was served by the Department of Domestic Economy to sixty-two members and guests. Your "true manual arts man," as Professor Frederick calls him, has a discriminating appreciation for both native talent and acquired ability along the lines included under the head of "domestic economy" as well as in the matter of close-fitting joints, smooth welds, or accurate mathematical solutions. So that, not to appear fulsome, it is sufficient to say that the dainty dinner of four courses served on this occasion met with

the unqualified approval of those present. Mention in particular must be made of the very attractive menu cards prepared by the art department. Combined with the lettering was the full length figure of a medieval gildsman. The whole design was reproduced in outline on rich cover paper by means of zinc etching, and the apron cap, etc., of the figure washed in by hand in appropriate tints.

After dinner the association was called to order by Vice-President, Clarence E. DePuy, Lewis Institute, who announced that the President, Professor Frank Forrest Frederick, now Director of the School of Industrial Arts, Trenton, New Jersey, was unavoidably detained at Trenton because of appropriation bills now pending in the State Legislature.

Director George N. Carman was then introduced and in a few well chosen words welcomed the Association to Lewis Institute.

The principal address of the evening, upon the topic: "Industrial Education," was delivered by Clifford B. Connelley, Director of the School of Apprentices and Journeymen, Carnegie Technical schools, Pittsburg, Pennsylvania. Mr. Connelley is well qualified to speak in this field and he brought a message that held the closest attention of his hearers. Unavoidable delay in transmitting the manuscript to the secretary renders a report of the address at this time impossible.

A very acceptable innovation that had been provided for the evening was a series of brief talks from members. Presson W. Thomson, director of manual training, Peoria high school, was introduced as the one who made the original suggestion that eventuated in the organization of the Illinois Manual Arts Association. Responding to the sentiment: "Our Organization," Mr. Thomson told the story of the Association from the beginning, very modestly estimating his own part in the movement, and closed by proposing for 1907–8: "Lower membership dues, a membershid of one hundred, and closer fellowship."

Edgar H. Sheldon, Chicago, presented "Our Weak Points" with keenness of diagnosis, inimitable classification of symptoms, and with prescriptions that would commend themselves to the most chronically dyspeptic.

"Our Strong Points" were discussed by Louis H. Burch, director of Manual Arts, State Normal School, Macomb, who said: "1. We have strong supporters and co-workers in other lines of school work who believe in us and our work; 2. Our work is clearly in line with the best thought of modern educators; 3. The children like the work when it is properly presented."

In place of the President's Address a letter from Professor Frederick was read from which we quote these sentences: "* * * The graduates of all these schools, with all their varied training, turn as naturally to teaching art or the manual arts in the public schools as ducks turn to water, and during the past ten or fifteen years we have made a great splashing in a variety of ways in educational waters and created a commotion out of all proportion to the value of the pebble we have tossed into the sea of education. * * * but isn't it time that our subject settled down a bit * * * [so that we can] * * * represent certain definite aims and accomplish certain definite and similar results? * * * I don't know that it's necessary that we shall get as cut-and-dried as the mathematics teachers, but I do think work in the manual arts should be carried on in some more definite fashion so that we might know what manual arts teachers as a class and as individuals stand for."

After the report of the secretary occurred the election of new members. The complete list, including those elected to membership at the Saturday morning session,

is as follows: Cassius Bruce Avery, University High School, University of Chicago; Albert J. Bauersfeld, instructor in woodworking, Thomas Hoyne Manual Training High School, Chicago; Ernest D. Bishop, Department of Manual Training, Chicago Normal school; George E. Bray, Director of Manual Training, New Trier Township High School, Wilmette; Erich T. J. Breuer, Supervisor of Manual Training, Public schools, Decatur; Wilbert S. Drew, Superintendent of Manual Training and Trade School, State Reformatory, Pontiac; George W. Eggers, Department of Graphic Arts, Chicago Normal School; J. H. Gill, Assistant Professor of Machine Construction, University of Illinois, Urbana; Thomas F. Googerty, Instructor in Forge Work, State Reformatory, Pontiac; Bertram Hedley, Instructor in Drawing and Woodwork, School of Education, University of Chicago; M. M. Mallary, Superintendent, State Reformatory, Pontiac; W. C. Toles, Manufacturer, Irving Park, Chicago; Eldon L. Usry, Supervisor of Manual Training, Public Schools, Bloomington; Edward F. Worst, Department of Manual Training, Chicago Normal School.

A committee on nominations was elected by ballot, as follows: Louis H. Burch, Macomb; Charles A. Bennett, Peoria; Louis A. Bacon, Indianapolis.

The Saturday morning session opened with a paper by P. W. Thomson on the subject: "An Elective Program for High Schools." Mr. Thomson has made a careful study of the work offered in a number of high schools in Illinois and he presented the results of his study in an analysis of the conditions and advantages of an elective program.

A most interesting paper was the one on "Manual Training Buildings," by Fred D. Crawshaw, Principal Franklin School, Peoria. The paper was illustrated by stereopticon slides showing floor plans and other views of interest. Among the buildings discussed were: McKinley High School, St. Louis; Crane Manual Training High School, Chicago; Stuyvesant High School, New Pork; Polytechnic High School, Los Angeles, Calif.; and the proposed new high school for Peoria.

Mr. Crawshaw discussed the requirements of the manual training building and the considerations that should control in planning and arranging. He proposed the following essentials in a modern manual training high school building: 1. Power plant—steam, electricity, water, compressed air; 2. Manual arts department,—wood and metal shops: 3. Science Department; 4. Domestic science department; 5. Commercial department; 6. Drawing department; 7. Class rooms in sufficient number; 8. Assembly hall; 9. Gymnasium; 10. Coat rooms and closets for both sexes on each floor.

The planning of equipments was considered at length and formulas deduced for use in presenting to architects the desiderata for the various shops.

An interesting discussion was precipitated by Frank H. Selden, High School, University of Chicago, who took issue squarely with certain of Mr. Crawshaw's propositions. Vice-President DePuy was obliged to cut off the discussion in order to make room for the remaining numbers on the program.

"A Course in Manual Training Suitable for Entrance Credit at the University" was the subject of a paper read by Charles A. Bennett, Bradley Polytechnic Institute, As this paper appears in revised form on pages 133 to 139, no attempt is made to report it here, except to say that it aroused a great deal of interest and animated discussion.

Many of the members regretted that the lateness of the hour prevented a discussion of the paper on "The Function of the Manual Arts in Education" presented by

Seymour L. Smith, Director of Manual Training, State Normal School, DeKalb. One practical result, however, was a creation of a committee of five to "work out a basis for, and to undertake the formulation of, a suggestive course of study, beginning with the primary grades."

A short business session followed immediately after the program. The Editorial Board, Charles A. Bennett, Chairman, was authorized to issue a Bulletin to further advertise the work of the Association

After considerable discussion of the treasurer's report it was decided that the annual membership fee be reduced to $1.

The report of the nominating committee was adopted and the following officers elected for the ensuing year; President, Fred D. Crawshaw, Peoria; vice-president, Harvey G. Hatch, Rockford; secretary–treasurer, William T. Bawden, Normal.

It was decided to accept the invitation to hold the next meeting at Bradley Polytechnic Institute, Peoria.

After the transaction of other necessary business the meeting adjourned at 2:20 p. m.

WILLIAM T. BAWDEN.

Normal, Illinois.

CURRENT ITEMS

CLINTON S. VANDEUSEN.

THE National Educational Association will meet this year at Los Angeles, Cal., July 8–12.

EXTENSIVE preparations are being made by school people for the joint meeting of the western Drawing and Manual Training Association, Eastern Art Teachers' Association, and Eastern Manual Training Association, to be held in Cleveland May 8–11. Headquarters of the association will be at the Hollenden Hotel. General meetings will be held at the Chamber of Commerce Hall and the large exhibit of drawing and crafts work at one of the new school buildings which will be in readiness at the time of the meeting. There is every indication of a very large gathering of art and manual-training workers.

MISS ANNA C. HEDGES, director of domestic arts at Pratt Institute, has resigned her position to accept one as principal of the Hebrew Technical School for girls. The change will not be made until the first of July.

ABOUT the middle of January the Stuyvasant High School in New York City suffered considerable damage by fire. The woodworking shops on the second floor were badly damaged, the loss in equipment being about $2,000.

THE council of Supervisors of the Manual Arts held its sixth annual meeting in the Classical High School building, Providence, R. I., January 25 and 26. This organization is unique in that it publishes the papers prepared by its active members and then meets to discuss them. It is needless to state that the meetings of the Council are never tiresome.

MANUAL training is advancing rapidly in Buffalo, N. Y. Eight more centers for grade work have recently been opened making thirty-two now in use. Two new buildings are being erected for the use of the Technical High School; equipment for a modern machine shop is to be installed in one of these buildings. The regular evening schools closed their term of twenty weeks February 20 but the demand for technical instruction was so great that the authorities found it necessary to continue the evening school at the Technical High School six weeks longer.

THE second meeting of the Cleveland Manual Training Club for the season of 1906–07 was held on Friday evening, January 18. Supper was served at six o'clock which was followed by an address by Supt. W. H. Elson, entitled "The Trend of Industrial Education". Mr. Elson developed the thought that the movement of industrial education is in the direction of the trade idea in school work.

AT the meeting of the North-Eastern Ohio Teachers' Association, February 15–16, an interesting and well-attended round-table conference of manual-training workers was held. Spirited discussions were held upon nearly all of the topics which made up the program:

1. Should not high schools give as much industrial training and credit to the girls as to the boys?
2. What credit should the colleges and technical schools give the manual-training work of the secondary schools?
3. Is the originality on the part of the grammar grade pupil developed and appreciated by the teacher as much as it should be?
4. What place has hand-work in the primary grades?
5. How much free-hand drawing should a modern manual-training course offer?
6. Is it not wrong to set manual training so far from the rest of the curriculum? How to set it closer?

THE course in theoretical and pratical manual training which has been given the past few summers at the University of Illinois is to be increased the coming summer to nine weeks. The work will be in charge of C. O. Atwater, of Indianapolis, Ind.

AT the meeting of the Kansas State Teachers' Association held recently at Topeka, the Manual Arts Association conducted an interesting round-table; they also elected officers as follows: A. M. Bumann, president; Lyle Brower, secretary and Chas. C. Cash, treasurer. The spring meeting of the association is to be held at Kansas City on April 5.

MANUAL training is now well established in the schools of Le Sueur, Minn., and is rapidly growing. For two years sewing has been a regular part of the work for the girls, but woodwork for the boys has been introduced quite recently and is very popular both with the students and the public.

CLIFFORD W. LIVINGSTON, supervisor of manual training at Huntington, Ind., has resigned his position to accept a position in the Kamehamsha Schools, Honolulu. He has been succeeded by Oliver B. Ramp of Burlington, Iowa.

Arthur B. Fairbanks of the Detroit University School has been selected to fill the place made vacant by the death of W. W. Murray of the Mechanics' Institute, Rochester, N. Y.

BREVITIES.

Drawings for the tailpieces on pages 139 and 152 came from Forrest Emerson Mann, director of the School of Applied Arts, Grand Rapids, Mich.

Competition No. 4 was a success; eleven problems were submitted. Presson W. Thomson, Clinton S. Van Deusen and Fred D. Crawshaw were the judges. They spent nearly a half-day in considering the problems from the four standpoints mentioned in the announcement of the competition. Then the prizes were awarded as follows; First prize, $10, to George G. Greene, State Normal School, Moorhead, Minn., for the windmill and tower; Second prize, $5, to Harris W. Moore, Watertown, Mass., for the electric box; Third prize, subscription to magazine, to Ira S. Griffith, Oak Park, Ill.; honorable mention to Ray L. Southwick, Minneapolis for the water moter, and to Harris W. Moore for the Hygroscope. Mr. Greene's statement is given below:

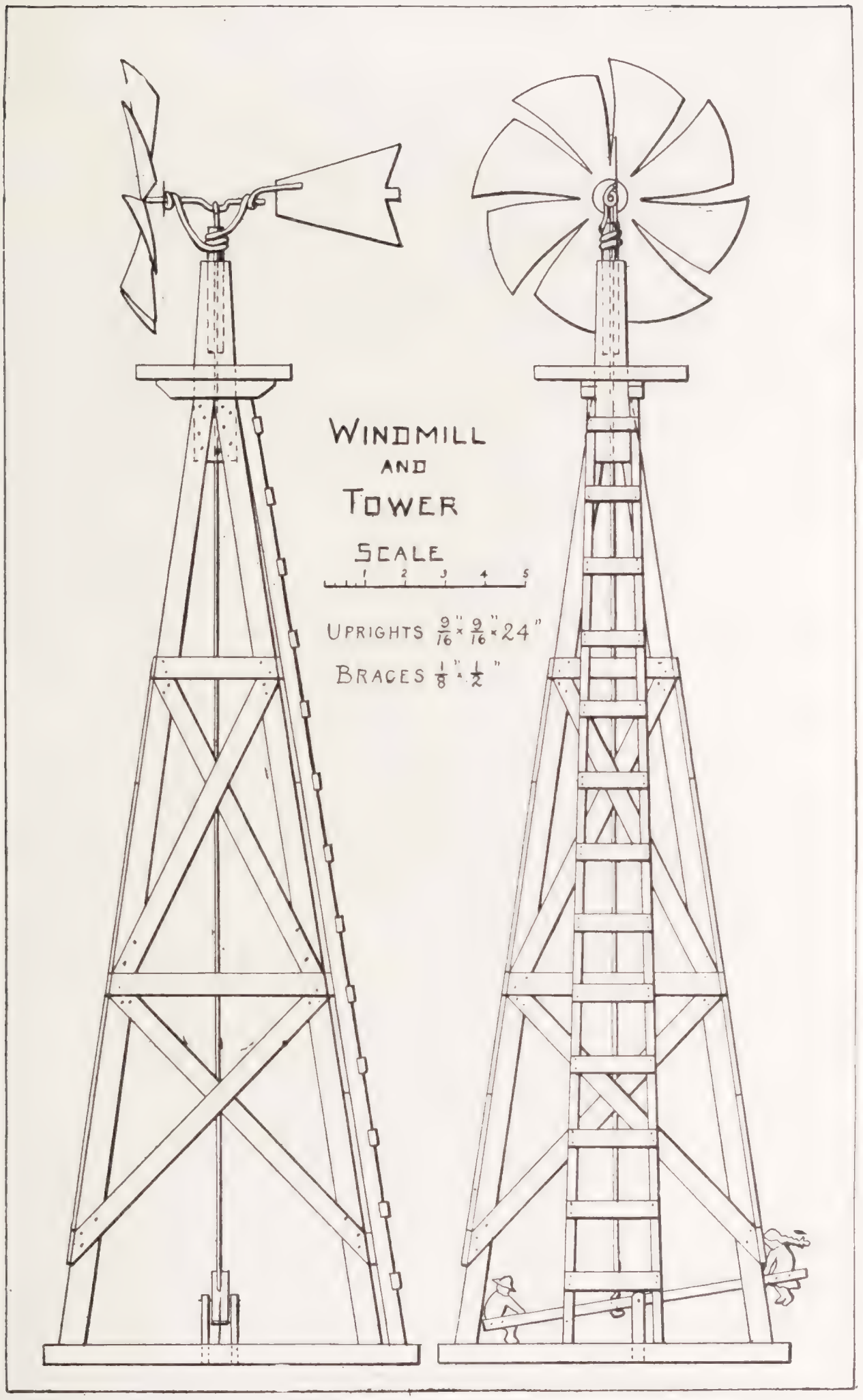
WINDMILL AND TOWER.

During the past ten years the author has presented this problem to many sixth, seventh and eighth grades and invariably it has proven the most valuable model in the course. While apparently complicated, the work is easily accomplished if a full-sized drawing is laid out on smooth board, from which the proper lengths and shapes of the pieces can be copied. It will be seen in the photograph that each boy used his own idea as to the proper proportions of the tower. By the time these were completed the problem of the wheel and what it was to run was generally thought out, efforts being made to have no two designs alike.

In most cases the boys have been able to do all the work including the soldering themselves. In the drawing the wire support for the crank is soldered first to the wheel, then to a tube which is free to turn in the center post, and lastly to the metal tail. A small washer fashened right behind the wheel takes the thrust with very little friction. As the connecting rod fits loosely in the see-saw at the bottom, the windmill is free to turn in any direction. In making the ladder, the side pieces are first fastened together, as that makes each set of notches the same distance apart, after which they are separated and the steps nailed in place.

When used as a community project the boys are first started on the wooden wheel of the familiar sloyd pattern. As fast as the boys finish their wheels they are assigned by a leader, who is foreman, to make certain parts of the tower. When everything is completed, the class decide in favor of the best wheel, which is then given the place of honor on the tower.

When properly made the tower will easily support the weight of a man, a never failing tribute to the value of scientific bracing.



FIRST PRIZE, COMPETITION NO. 4—GEORGE G. GREENE

(See Photograph, Page 132)

REVIEWS.

NOTES FROM THE GERMAN MANUAL TRAINING MAGAZINE

By George F. Foth

Supervisor Manual Training and Drawing, Cheltenham Township, Penna.

In the January number of the "Blätter für Knabenhandarbeit," Dr. Pabst, Director of the Teacher's Seminary for Boys Handwork at Leipsic, has an article entitled Elementary Manual Training (Werkunterricht) in which he says: by the term elementary manual training we designate the elementary stage of manual training, which is restricted to the construction of such exercises as can be executed in every schoolroom and at every work table by means of the simplest tools; (scissors, knife, bracket-saw, etc.)

The elementary manual training should be a training in representation; that is, it should represent through the hand principles and ideas, which the child has acquired through object lessons. The usual elementary instruction makes use principally of language as a medium of representation and especially of drawing. The latter medium, however, is limited to the surface, while elementary manual training has for its aim, the representation of material forms. Herein is the great advantage of elementary manual training in contrast with drawing; it alone can fully realize the demands of representation of form.

Speaking of concrete exercises in elementary manual training he says, "Paper construction work begins with exercises in folding, which are well adapted to the observation lessons of the first year. Our present course for the first grades, as well as the handbook on the art of paperfolding, by Speil, offer a wide selection of exercises adapted to this grade.

A number of exercises with sticks and peas and other objects can be utilized to supplement these. A second series of exercises consists of cutting and pasting various forms, which are closely related to drawing and brush drawing. Geometric forms are here just as applicable as nature forms. Among others, Grimm's course offers suitable material. The paper construction exercises are followed by the simplest cardboard exercises so far as they can be executed in the third and fourth grades. Reference is here made only to the construction of the simplest exercises, (school programs, book cover, note book, square, rectangular and hexagonal tray, etc.) through which the geometric conceptions may be explained and clearly developed."

In the same magazine, we further find a complimentary review of F. D. Crawshaw's "Problems in Furniture Making," in which Dr. Lenz says: "What is especially to be commended in the collection of 'Problems' before us, is the simple design well adapted to the material, which distinguishes all these racks, benches, tables, chairs and cabinets. To this is added a thoroughly correct, massive construction and also the application of the simplest wood-joining processes. Of such thoroughly workmanlike models as are here given, we have entirely too few in our benchwork, because we always direct our efforts toward trumpery, the so-called 'art cabinet making,' and not toward the products of the common people, where is our

richest source. In this particular, the American has a distinct advantage. He begins at the bottom and develops his work on sound principles. That this work is capable of development, this volume shows conclusively. To such as are in search of inspiration for their shopwork, this publication can be most heartily commended."

THE November number of the Blätter für Knabenhandarbeit announces the death of Jens Adolph Clauson von Kass, a great promoter of the idea of hand training. To this man, perhaps more than any other the idea of the manual training movement in Germany owes its origin. He gave rise to the idea for which the Society for the Promotion of Boys Handwork in Germany stands. For many years he held a position of high honor among German educators and at the great convention at Stuttgart last July, he was one of the central figures. His name will long be held in honor by his colleagues.

THE summer course in the Teacher's Seminary for Boys Manual Work, at Leipsic had an enrollment of twenty-one students during the summer of 1906. Students came from North, South, East and West Germany to take part in the course. The interest maintained throughout was noteworthy. All had come to work and get new ideas. This made a good showing for the Society for the Promotion of Boys Handwork, and if the enthusiasm and interest manifested are maintained, the desired results cannot fail to appear. Courses in cardboard work, benchwork, modeling, whittling and metalwork were offered during the summer of 1906.

DURING the last weeks before Christmas, in the large Military Asylum at Potsdam, the work takes the shape of weaving in paper, especially weaving of stars out of gilt paper. Christmas articles are made, such as stars, bookmarks, stars with rays and crowns.

AMONG the important publications reviewed in December, was one by Dr. Pabst on " Boys Handwork in Present Education." The book is well illustrated and contains information for those who are in favor of boys handwork in schools and are desirous of bringing education to a higher standard.

Year-Book; Council of Supervisors of the Manual Arts, 1906. Edward D. Griswold, Secretary, 296 Woodworth Ave., Yonkers, N. Y. 7×10 in., pp. 238 plus 24 half-tone plates and including numerous line illustrations, many of which are full-page plates.

Beyond all question the Council's Year Book has come to be the most valuable single publication on the manual arts. It is not a theoretical treatise, though theory is not excluded, but it is essentially a book of practical suggestions gleaned from the experiences of some of the leading teachers of the manual arts. Produced by such a body of trained and enthusiastic workers it is not strange that the book has a quality not to be found elsewhere.

This present book is perhaps broader in its appeal than any previous one; at least is makes a stronger appeal to teachers of manual training, as will be seen by the following titles: "Knife Work in the Schools" by A. W. Garritt, "The Manual Training Room and its Equipment" by M. W. Murray, "First-Year Drawing in the Technical High School" by Frank E. Mathewson, and "The Teaching of Lettering" by Harold Haven Brown. But many who call themselves manual training teachers will be no less interested in Miss Cremin's excellent article on "Design in the Primary

Grades," Dr. Haney's helpful discussion of "The Use of Natural Forms in Design," and a half-dozen others. Indeed, every article in the book will be welcomed by every broad-guage teacher in any department of the manual arts.

Not only should the members of the Council take real satisfaction in producing such a book, but every teacher of the manual arts in America ought to realize that such a publication is elevating the standard of his profession and is therefore really helping him in his work.

The following have been received:

Annual School Report of Winnebago County, Illinois, O. J. Kern, Superintendent. This report for 1906 is no less attractive than former ones. Superintendent Kern has a happy way of illustrating his reports as he has his book "Among Country Schools" in such a way that it appeals to everybody—the corn-grower, the housewife, the teacher, the boys and girls, the lover of the beautiful in nature and the believer in the wholesomeness of country life. The present report contains a chapter on "Manual Training in the Country School" including an article by Harvey G. Hatch, supervisor of manual training in Rockford, Ill.

National Society for the Promotion of Industrial Education, Bulletin No. 1. This 44-page publication contains the proceedings of the organization meetings reported in the January issue of this MAGAZINE. In it are also addresses by Milton P. Higgins, Dr. Nicholas Murray Butler, Frank A. Vanderlip, Frederick P. Fish, Alfred Mosely, Samuel B. Donnelly, and Miss Jane Addams. Copies of this bulletin may be obtained by addressing the secretary, Professor Chas. R. Richards, Teachers College, New York City.

Proceedings of the Pacific Manual Training Teachers' Association. Price, 25 cents. Ella V. Dobbs, secretary, Pasadena, Cal. This contains papers by H. M. Snell, Charles H. Stearns, Dr. L. D. Harvey, and others; also an illustrated paper by R. Mackay Tripp.

The Report of the Committee on Handicrafts in the Public Schools. This is a reprint from the 1906 report of the Western Drawing and Manual Training Association. The entire report is sold at 50 cents a copy, but the reprints will be distributed free. This committee report has been prepared by Miss Elizabeth E. Langley, of the University of Chicago with greatest care and is of value to every teacher of handwork who will give it a thoughtful reading. If you want a copy send your full address to Charles A. Bennett, Bradley Polytechnic Instute, Peoria, Ill.

Manual Training Number of the American Industrial Journal. This journal is from Delevan, Wis., is "published in the interests of the industrial departments of schools for the deaf and of the deaf themselves throughout the world". This special number contains illustrations of manual training work and an article on "Manual Training at Aurora, Illinois" by the director in that city, Mr. A. C. Bloodgood.

The Third Annual Report of the Manhattan Trade School for Girls. Mrs. Mary Schenck Woolman, director. This report is most interesting to anyone who is studying the trade-school problem. This school is at 209-213 East 23rd St., New York City.

VOLUME VIII NUMBER 4

MANUAL TRAINING MAGAZINE

JULY, 1907

THE MANUAL ARTS: TO WHAT EXTENT SHALL THEY BE INFLUENCED BY THE RECENT MOVEMENT TOWARD INDUSTRIAL EDUCATION.[1]

CHARLES A. BENNETT.

FOR several years past drawing and manual training have been finding a more and more important place in the work of our public schools. These two subjects began with independent movements, but they have been growing nearer and nearer together, and in their best development they have now become so unified thatt hey are properly designated by the single term Manual Arts. And this development has not been merely the bringing together of the two original fields of work, but rather, the broadening and enriching of both, so that the term Manual Arts stands for more than was meant a few years ago by both drawing and manual training together.

At the present time there is another movement toward industrial education which is distinct from either of the two former ones. The report of the Massachusetts Commission on Industrial and Technical Education and the formation of the National Society for the Promotion of Industrial Education represent this new movement. The contention of this movement is that the public schools are too academic in character, and that the industries and the industrial workers of America are suffering for want of an education that is more distinctly vocational in character. This movement would not wish to have public education less cultural, but it would emphatically demand that it be more vocational. Public education should at least do as much toward fitting for the mechanical, building, textile and for other trades and for agriculture, as it now does for the professions.

[1]Paper read before the North Central Association of Colleges and Secondary Schools, Chicago, March 29, 1907.

The Manual Arts, then, stand for work that is cultural first and then vocational, while the Industrial Education movement would have the handwork vocational first and cultural second, or perhaps more correctly cultural by virtue of being highly vocational. The question before us is, To what extent may we harmonize these viewpoints in public school work? or, in other words, is it not possible to modify the work in manual arts so as to meet the demand for industrial education so far as it can be legitimately met in public schools without establishing schools of a different type?

As we look back upon the development of manual training in America we see that when it first started it was very technical in character though the aim, as set forth by its advocates, was general and not technical education. In reality the school shop at that time was but one step removed from the manufacturing shop. As the work developed, the teacher of manual training gradually came nearer living up to his general educational ideal, and this change, as might have been expected, was accompanied by some sacrifice on the technical side of his work. Not always, but often—and I am inclined to believe more often than not—the movement was away from the methods of the best workmen in the commercial shops. This may not have been done consciously, but it was a natural result of the continual emphasis on the general educational aim. The argument constantly brought forward was:—"We are not teaching a trade; we are training the faculties of the children—training the observation, the imagination, the will, etc. We hold to a democratic ideal which prevents us from condemning any boy to a life of hand labor. Every boy must have an equal chance in the public schools."

The tendency of this theory was to introduce problems having less and less to do with the technique of practice in the trades. This theory was held until a new pychology was substituted for the old, and we ceased to be afraid to admit the technical or trade value of our work. Now there is no need of putting up the old-time arguments, and we are coming to have a far more rational basis for our work. And in so far as we are doing this, we are realizing the necessity of making the technique of our work square with that of the expert workman in the commercial shop.

In the development of drawing in our public schools the record is not far different. When it started, about thirty years ago, it was patterned after the drawing of the technical schools of England, and these schools were in close touch with English industries, yet its advocates,

foreseeing the industrial future of America, urged that drawing be made a part of general education. As the instruction developed, it broadened to take on the art ideal, and while we are more than glad that it did, we recognize that in doing so it became farther removed from the industries. Now under the influence of the Arts and Craft Movement, and in contact with the broader development in manual training, drawing is coming back to industry again, and coming with a richness that portends a great future for industrial art in America.

Turning now to the present Industrial Education movement, it is easy to trace its origin to the failure of the public schools to keep up with the times. Industry has developed faster than the shools have developed on the side of industry. In this matter too, as in manual training and drawing, we have followed our democratic culture ideal of education, and practical education has suffered thereby. We have said, "Every boy must have a chance to become president of the United States," and we have shaped his course to accord with our idea of the shortest route. In this it looks now as though we have made a mistake—not in having a democratic ideal, but in starting every boy on the same route, and especially by a route that leads away from the manual industry by which he must earn his living before he gets to be presinent. We have forgotten that Abraham Lincoln was a rail-splitter before he was president, and that he didn't merely play at rail-splitting, but really split rails to earn his daily bread.

Our public schools, even with drawing and manual training have not met the demands of industry. There is a decline in skill of hand felt throughout the country, so that there is now a national demand for skilled workers in the industries and there is no adequate means of supplying this demand. The Industrial Education movement says that the only way to meet this demand is through schools of some kind—either through our present public schools in revised form, or through independent schools. Moreover, it points out that true culture comes through the mastery of an art more than through the study of its elementary processes merely. We speak of Greek as a culture study, but we surely do not mean that the study of Greek grammar gives culture. The culture comes chiefly from contact with the Greek thought that is gained after the grammar has been mastered. Likewise the Industrial Education movement is bringing home to us the thought that the elementary processes of formal manual training, while disciplinary, are not so cultural as processes that naturally follow these and also meet more specifically the demands of the trades. According to Mrs. Mary

Schenck Woolman, this has been strikingly illustrated in the work of the Manhattan Trade School for Girls.

Industrial Education aims to produce trained workers for the industries, but these workers must be intelligent as well as skillful. The aim is not to produce more machine tenders, but more thinkers—not, however, thinkers with reference to higher mathematics, history or government, but thinkers with reference to the particular industry in which the workers are to engage. This movement, then, aims first of all to develop industrial efficiency.

If we review for a moment the present aim of the manual arts and the aim of the new movement toward industrial education, we see that they have many elements in common. We see that the aim of the manual arts is, first, general education and, second, vocational training, while the aim of the industrial movement is, first, vocational training and, second, general education. From this standpoint the difference is one of emphasis. Both stand for the general educational value of hand training; both recognize the importance of stimulating thought in connection with handwork. Both appreciate the value of art. On the other hand, there is a difference that in the past at least, has kept the two apart.

Manual training with its fear of being classed as trade work, and its emphasis on general training has often stopped a process before it reached the highest cultural stage—before anything approaching the mastery of that process had been gained. The effect of this has been the "smattering" that the trades people charge us with. While one can have little sympathy with many such statements, he cannot fail, if he has been a thoughtful observer, to recognize that there is a sound basis for some of them. He must recognize that there was some reason for the following statement in the Massachusetts report of the Commission on Industrial and Technical Education: "The wide indifference to manual training as a school subject may be due to the narrow view which has prevailed among its chief advocates. It has been urged as a cultural subject mainly useful as a stimulus to other forms of intellectual effort,—a sort of mustard relish, an appetizer,—to be conducted without reference to any industrial end. It has been severed from real life as completely as have the other school activities. Thus it has come about that the overmastering influences of school traditions have brought into subjection both the drawing and the manual work."

There is also another fundamental difference between the manual arts and trade instruction: The aim of the manual arts is idealistic

while that of trade instruction is commercial. The manual arts aim is often quality without reference to quantity—fine craftsmanship no matter how much time is consumed, whereas the trade school is quite sure to consider both quality and quantity and to gage both by the demands of commerce. No doubt we all would insist that the manual arts continue to keep quality first, but it is fair to ask if school standards are in fact always higher than the commercial, and whether the work would be less valuable as a means of general education if the time or quantity element were to be given some emphasis.

From this brief discussion we will turn now to answer the real question before us: How shall the Manual Arts be modified to meet present demands with reference to industrial education?

1. Give the teachers better preparation on the technical side. If possible require them to supplement technical training in school with actual experience in a commercial shop.

2. Courses in the manual arts in the upper grammar and high school grades should be made more practical by insisting on the best technique. Methods employed in the trades should be studied more, and then followed.

3. In all grades of work more industrial intelligence should be developed. From every point of view it is a mistake to confine the instruction in the manual arts to the mere processes. The handwork should be the center about which cluster a great fund of information about materials—processes of procuring, preparing, refining, etc.,—applications in the industries, masterpieces of art and construction, other methods of working, and the like. Moreover, the problems worked out should be selected in part with reference to helping the pupils to get such information. Thought must be developed along with skill and that thought should not be confined to the bare processes.

4. It is time to recognize that there are two types of courses in the manual arts in our high schools:—(a) manual training courses per se, such as elementary woodworking or elementary metalworking; and (b) technical courses, such as pattern-making, forging, machine shop practice, etc. The former are, and should remain general foundation courses in handwork. They should precede most trade or technical courses. The latter, also, we have been in the habit of speaking of as manual training courses, but I think we will make a mistake if we continue to do so. The difference between the best manual high school course in pattern-making and the best engineering course in pattern-

making and the best trade school course in pattern-making is very small indeed after due allowances have been made for age and previous education of the students. Certainly pattern-making is an excellent subject for the purposes of manual training, but it is so much more specialized than elementary woodworking, for example, that teaching it well in a manual training high school really amounts to teaching the pattern-maker's trade, or such part of it as is possible to teach in the time available for that subject. Otherwise how could our students who have need to do so, go out from manual training courses and shortly become journeymen pattern-makers? A similar question may be asked concerning manual training school students who at once become journeymen machinists. Moreover, the engineering colleges have recognized the fact that the manual training high schools give technical courses, and they have allowed college credit accordingly. It is high time that the manual training high schools themselves recognize this fact and thus bring their theory to accord with their practice. There is a distinct advantage in doing this, because the moment it is recognized that pattern-making, forging, foundry work, machine construction and machine drawing in manual training high schools are technical courses, and not fundamentally manual training courses, the schools will cease to draw imaginary lines of distinction, and will set about to make the courses better technically. In other words, they will make them more technical, more practical, and in doing so come nearer to meeting the demands of industrial education in reference to these trades. It would also tend to make clear the difference between subjects worthy of college credit and those suitable for entrance credit only.

This point being accepted, it is clear that the elementary or manual training courses should be broadened and enriched, and that the advanced or technical courses should be more highly specialized and made to harmonize better with trade practice.

5. Under conditions of local demand in small high schools, and as regular subjects in large high schools, more technical courses should be added. For instance, the plastic arts and the book-making arts which are finding a welcome place in the elementary schools, should be given a corresponding place in the high schools in technical courses in bookbinding, commercial design, and clay modeling. This is largely an undeveloped field, but one likely to yield valuable results, especially as these subjects touch the work of girls as well as boys. This leads to the thought that the girls' work in dressmaking, cooking and millinery in manual training high schools has been more confessedly technical

in character than the boys' work, and has often gained its support wholly on that basis.

From the standpoint of organization the further development of these technical courses would probably mean a more general recognition of the value of electives.

6. Evening technical courses should be given wherever a reasonable attendance can be secured. The recent success of such courses in Springfield, Massachusetts, and Brooklyn, New York, indicate that there is a real demand for this kind of continuation-school work. Not only are such courses a great help to those who take them, but the contact thus gained with real industrial needs is a help to the school. To talk with the workmen from the shops and learn their needs and difficulties is an excellent experience for the teacher of any technical subject.

The six modifications of the work in the manual arts just suggested seem but the logical development of the subject and ought to have come about even if there had been no agitation on the subject of industrial education. Moreover it would seem that these modifications go about as far as can be gone in public education without an entire reorganization of the public schools on an industrial basis, or the establishment of independent industrial or trade schools for pupils who prefer such a school to the time-honored one.

After all has been said on the question there still remains the obvious fact that the manual arts work in the schools is so closely allied to trade work that if the public schools, as now organized, are to teach trades or are going to give such technical courses as will even in part meet the present demand for trade instruction, the logical plan of procedure is to have it come about through an evolution of the present work in the manual arts. And if such an evolution is to take place, teachers must prepare themselves more thoroughly; they must insist on the best technique being employed in their classes; they must work for greater industrial intelligence and must recognize that our present advanced manual training courses are really technical courses and treat them as such. Then the evolution will be a natural and easy one, and we shall certainly come much nearer than ever before to realizing the ideals of those who have sought to make our public schools as much a preparation for industrial pursuits as for commerce and the professions.

APPLIED DESIGN IN THE HIGH SCHOOL, A LARGE FACTOR IN THE PROBLEM OF INDUSTRIAL EDUCATION.

JOSEPHINE MAHON, East Orange, New Jersey.

ON the afternoon of November 16, there was organized in Cooper Union, New York, a National Society for the Promotion of Industrial Education. This Society is the result of forces that have been in the air for some time. The enthusiasm which greeted the speakers who explained the objects of the Society and spoke of the need of this kind of education, would seem to indicate that in the near future we shall see a great revision of our common school system of education to meet an unprecedented development in industrial education, and it may be that manual training workers have built better than they knew in preparing the way for the new movement—laying broad foundations upon which to build a great system of industrial education.

One of the principal addresses of the meeting was made by Mr. Frederick A. Vanderlip, Assistant Secretary of the Treasury under President McKinley's administration. The main point made by Mr. Vanderlip in his speech was to the effect that the great natural advantages enjoyed by this country, combined with the mechanical and engineering skill of our people, and the vast scale on which our manufactures are conducted, have made the United States the leading commercial nation of the world. The end of these conditions is, however, in his opinion, easily calculable as our national resources are constantly growing less and as there are among us intelligent visitors who are studying our methods of manufacture and finding ways in which they can be improved. They are copying our business methods and seeing how to avoid our financial mistakes. If we do not do something in the near future to bring our manufactures up to a state of superior workmanship, we are in danger of losing the position we have gained; for the ingenuity of our people is not beyond imitation, and the day may come when we shall find that our position on the crest of the commercial wave has been taken by some other ship of state. Mr. Vanderlip made the statement that it is a remarkable fact, that among the motives moving buyers in foreign markets to purchase the $1,800,000,000 worth of American

products in a single year, one of the most potent considerations which ordinarily influence a purchaser's mind, never once became active in closing an important bargain. No purchaser bought our goods for the reason that there had been wrought into them superior handicraft. Manual skill controlled for us no market. He also said that the one great competitor of the United States in most of the world's markets is Germany, and that every manufacturer in this nation knows that Germany's superiority in international commerce, rests almost wholly on Germany's superior school system. It is the aim there to make of each citizen of the empire an efficient economic unit. The ideal is to do whatever educational training can do to make men economically efficient. That ideal is having a most profound influence in the commercial world. It has put Germany, in spite of her natural disadvantages, in the fore front of commercial nations.

Probably the chief reason which influences the great and increasing demand for objects found in our stores, bearing the stamp "Made in Germany", is their pleasing design. These objects, often made of inferior materials, find purchasers because of their nice lines and agreeable coloring. If you will pardon a bit of personal experience, I should like to speak of a recent shopping expedition in New York for wall paper. Several shops were visited and it seemed as though a third of the samples in the books were of German manufacture. German papers are thin and poor in quality and must be handled very carefully in hanging if you would not have them tear, yet their uncommon drawing makes them find ready purchasers.

In spite of the fact that in these days almost everything that is constructed must first be built on paper, drawing, particularly freehand, is one of our great national weaknesses. We are not a nation of artists and yet art is as much a necessity as is our daily bread. It is not some thing that we may have or not have—we *must* have it.

For good examples of modern fine arts we do not now find it necessary to go to Europe as we have an excellent though small school of American painters and sculptors, and why should it be necessary for us to import so many of our designs and designers? It is not true in anything else, but in design we seem to be afraid to experiment. We prefer to allow other countries to originate styles for us to copy. We do not like to create. We do not fully realize the commercial value of good design. We do not understand its far-reaching influence. It does, or should, form the framework of every example of art. Many pictures hanging on our gallery walls, judged by its standard, are found

to be defective. It is just as applicable in the fine as in the industrial arts. I know a designer, who, a few years ago, discovered that he could paint pictures and paint them well.

Designing is difficult; it demands much of the spirit. If it is true that "thinking is seeing relations", then thinking and designing are one and the same. We should have much more design and less representation in our school work. There should be no separation between our art and our manual training, industrial art, art-craft, or whatever you choose to call it. Every line we draw demands muscular control, and every time we use a tool we draw. Design that is not applied loses a large proportion of its disciplinary worth. It is only by a knowledge of material values that we can adapt it for execution. All design should grow out of structural necessity, in fact, all art should. It is only by a recognition of these demands that it can be made harmonious. The form must first be considered, then the decoration. The two should never be separated and neither can properly be made an abstraction. Every exercise in art-craft, especially in the high school, should, to the greatest possible extent, be an expression of the pupil's own taste. It should visualize his own feelings; it should be the result of his own material and spiritual needs. Springing out of his own likes it is apt to be carried to a successful issue.

The student's own taste should, to a large extent, control the manual execution. Straight lines are very strenuous and are of little account. You are sure their maker used a ruler, or held his breath. Art has little to do with them. The lines should quiver with young life. This makes them human. It makes them restful. They should not be too true, for art does not care for truth. Art revels in fairy tales. There is a fine medium to be striven for somewhere between the careless and the hard.. Fine feeling and fine proportion are much more to be desired than fine execution. Fine execution is all right, possibly, if we do not sacrifice too much for it. Art should control it, as mind controls matter. The art of a thing is its spirit and that is the part that is incorruptible, undefiled and that passeth not away. The perfection of execution may pass away. The Venus of Milo may lose her arms, a bit of 16th century tapestry may fall into rags, but as long as there is a fragment left it will be valued and preserved for its beauty and that alone.

The high school age is a period eminently fitted for the real beginning of the cultivation of taste, for the real beginning of the acquisition of the golden touch. At no time in life are the sensibilities more tender and the imagination more flexible. It is then that the beginnings of the

underlying principles of harmony can best be taught. It is then that pupils can best be made to understand that a selfish enjoyment of the works of others is not enough, but that with knowledge comes the duty and responsibility of action. It is their business in life to create. It is their privilege. The great Creator has breathed it into them with the breath of life. This thought opens up for consideration the whole field of economics, and its relation to the subject of industrial education will readily be seen. I shall only say a few words, however, about its relation to the home. If we could eradicate from the minds of our students that an article to be worth possessing must come from a shop or must be the product of fingers other than their own; if we could inspire them to feel the real value of the things which they make for themselves; if we could induce them to be more critical of other people's wares and less critical of their own efforts; if, in a word, we could arouse faith in themselves and respect for their own productions, we could remove mountains in the way of home decoration. Homes must be decorated. They must contain many objects which are there for other than utilitarian reasons. An enthusiasm for good proportion, some knowledge of color and of the distribution of dark and light, would relieve our homes of much of the silent warfare which we see there—incongruous objects quarrelling with each other and with their surroundings. In our domestic architecture we should have less of this endless variety which is at the same time monotonous sameness. We should have more individuality. Our homes would be expressive of the landscape and also of the life within. They would be more attractive and *cost less*. We should find pleasing effects produced from inexpensive materials. We should have rugs, hangings, pictures and furniture made at home, or selected with reference to each other and all properly fitted to their spaces. Wall paper would harmonize with woodwork, color schemes in adjacent rooms blend pleasantly, and we should often have the services of dressmaker, milliner, plumber and carpenter dispensed with.

In the high school we can give efficient aid in the solution of the great problem of industrial education by lending our most earnest efforts in the direction of applied design.

SWEDISH SLOYD, II.[1]

ALLISON A. FARLEY, Oshkosh Normal School.

SLOYD in general terms is "a system of educational handwork." The conception of sloyd which Mr. Salomon evolved, however, was of a body of exercises in wood alone. The motive for his concentration of attention upon wood lies chiefly in the demand for a method of handwork, having high "educational value" which could be understood and controlled by the average teacher and which was simple and inexpensive enough to accord with the conditions of the common school. Salomon's system of sloyd is a series of graduated psycho-physical exercises, eighty-eight in all, to be expressed in wood by tools adapted to the exercises. The gradation is arranged with view to a gradual increase of hand-eye-touch co-ordination involved in the exercises and does not depend primarily upon the complexity of tools or models. The series was selected with reference to its power to realize certain educational aims which Mr. Salomon had conceived for manual training. These aims as set forth in his "Hand-book of Sloyd" are:

1. To develop a taste for labor in general and a respect for rough bodily labor in particular.
2. To train the eye and sense of form. To train the dexterity of the hand and develop touch.
3. To develop independence and self-reliance.
4. To train in habits of order, exactness, cleanliness and neatness.
5. To train in habits of attention, interest, industry, perseverance and patience.
6. To develop the physical powers.

The significance of these aims arises partly from the original desire to revive an interest in manual labor, the decline of which was viewed as a menace to the national character; partly from a growing appreciation of the important place the sensory and motor powers hold not only in the activities of adult life but also in the normal physical and intellectual development of children; and partly from the belief that manual training as a purely disciplinary process can develop powers and virtues generally more efficaciously than the "passive" form of instruction.

[1]The first article of this series appeared in the April number, pages 148 to 152.

It appears that sloyd as a conception of education is an effort promulgated by its founder to reconcile the cultural, utilitarian, and disciplinary ideals of education. It is an attempt to harmonize in such a reconciliation the facts of child development with the conditions for successful social participation as an adult. No one can rightfully say, however, that these three ideals can occupy equal positions in a single conception. One or another must always be dominant, determining the value of the others in its own mode of realization. As to which ideal is really dominant in the mind of the propagandist, this can be most correctly ascertained from an examination of the method taken to realize the ideal. What an individual does is usually the best index of what he most believes in.

There are two conceivable modes of treating the sensori-motor powers with reference to the educational process. One is to use them as the mode of expressing all the child's interests that such powers are capable of realizing. In this case the interest of the child, whether emerging from school, home or other experience, is the chief factor in the selection of the manual exercises. These are treated more as a medium of experience than as a distinct subject matter having its own logical relations, delimiting it from other special subjects. The other mode of manual training arises from the thought of it as a body of sensori-motor processes having with each other a logical relationship which forms the basis for their arrangement into a distinctive "course" or subject of study, having its peculiar content and method. This second mode of manual training is that of Swedish sloyd.

The typical sloyd course consists of a series of fifty models embracing all of the eighty-eight motor exercises in a gradually developing order from the simple to the complex and from the easy to the more difficult. This course is designed to extend through a period of four years with an hour of work each day. It begins with children of eleven or twelve and closes at fifteen or sixteen years of age. The first fifteen models of the regular series, requiring about four months to complete them, are given below:[1]

1. A small pointer ....10x.8 cm.
2. Parcel carrier .... 7x1 cm.
3. Round flower stick .....20x1 cm.
4. Letter opener.....17x1.1 cm.
5. Flower stick .....35x1 cm.

[1]From Saloman—The Handbook of Swedish Sloyd.

6. Pencil holder ..... 20x1.2 cm.
7. Key label ..... 8x2.7 cm.
8. Thread winder ..... 9x4.5 cm.
9. Round ruler ..... 39x2.5 cm.
10. Pen rest ..... 9x1.5 cm.
11. Paper knife ..... 30x3 cm.
12. Razor strop ..... 40x4 cm.
13. Pin tray ..... 9x5.5 cm.
14. Hammer handle ..... 30x3.2 cm.
15. Pen tray ..... 25x7 cm.

The small size of the objects is a characteristic of the series; but a few larger objects, as for example a footstool, a small bookcase and table, are included in the course. The general resemblance of the objects to each other, their familiar use as household utensils are further characteristics of the models.

Dexterity of hand, or the power of close sensori-motor adjustment comes from the close imitation of the size and form of the model which is required. So slight and almost imperceptible a variation as one-tenth of a centimeter in many cases is not overlooked. This exactness is an all-important requirement since nearly all of the greater sloyd aims such as skill, discrimination, concentration, patience, etc., are to be realized by the observance of this one point. Love of labor, it is believed, will arise from the perfection of the work and the production of useful articles. Independence is to be inculcated by the practice of working individually with no co-operation or direct aid from either teacher or fellow pupil. Order, by which is meant the ability to perform well a complex task with the least expenditure of time and energy, is developed by insistence upon a prescribed order of the movements involved in the construction.

The close grading of the exercises, as secured through the objects or models, may be demonstrated as follows: The construction of the small pointer, the first object in the series, involves but the two simple "exercises", the "long" and the "cross" cut with the sloyd knife. No. 2 has the "oblique" cut as the only additional exercise; No. 3 the convex cut and the saw; No. 4 introduces no new exercises; with No. 5 rip-sawing, planing and squaring in simple forms are introduced as new exercises. Thus the progression advances very gradually, each new object involving the repetition of many of the preceding exercises and in many cases but a single new movement is added. It is only by such

gradual advance that sufficient motor control is thought to be developed, making possible the reproduction of the model forms with the prescribed degree of exactness.

The chief tool used in sloyd is of course the knife. It is used in one or more of the exercises in the construction of all but twelve of the fifty models. The knife is advocated as the principal sloyd tool because of its familiarity to the average boy, its simplicity, and because so many exercises can be performed with it. Its use is supplemented by the various planes, saws, files, bits, and other familiar tools.

It is thought that the interest of the children is sufficiently provided for to prevent the mechanical form of reaction in the work and to insure effective results by the opportunity afforded for motor activity which most children desire, by the attractiveness of the tools, by a pleasing variation in the models as to form and use, by the careful grading of the exercises, keeping them always within the capacity of the children concerned and developing the consciousness of increasing power, and by embodying the exercises in objects that are concrete in the sense that they are finished wholes, having a common use in the home and community.

An investigation of the merits of sloyd as a means of education takes its chief significance not from a historical point of view which would regard it as a completed stage in the general movement of which it is a part (although it has great historical importance as one of the earliest beginnings of the manual-training movement), but rather because of its growing prominence as an active factor in the present scheme of public education in various countries, and its vigorous demands for still greater recognition. In Sweden where the government gives it substantial financial support, it is, perhaps, the most prominent study in the public school curriculum. Its introduction into England, where it is received with but little modification, is already extensively accomplished. Swedish sloyd has had a marked influence upon the education of most of the other countries of Europe and under the name of American sloyd, in content and method however essentially unchanged, it has obtained a foothold in many of our American schools.

Mr. Salomon speaking for sloyd says, "its purpose is not to turn out carpenters, but to develop the mental, moral, and physical powers of the children, and it is the most effective instrument yet devised for securing this development." He further states as the specific results of the sloyd that "it gives a taste for rough manual labor as distinguished from

clerkly accomplishments; it cultivates manual dexterity, self-reliance, accuracy, carefulness, patience, perseverance, and especially does it train the faculty of attention and develop the powers of concentration." In still further advocacy of his system, he states, "sloyd, properly taught, will be found to supply an educational value not furnished by the subjects usually taught in the schools, and in that sense we regard its introduction necessary."

It may be granted, perhaps without question, that sloyd tends to produce the ends set up for it by its founder; but that it will achieve them more effectively, by virtue of its own content and method, than other subjects in general or of other forms of manual training in particular, may in the light of modern educational science be fairly open to legitimate doubt.

Perhaps the most important contribution ever made to educational theory is the proper conception of the place which the child's individual interest takes in the educational process; and in particular the place in that process which the reflective phase of interest, the power of self initiative, should properly hold.[1] The present regard which educational science extends to these factors as the fundamental elements of method, arises from the appreciation of their value as indices of the needs of individual children and consequently the direction of their normal growth. In view of the conception of interest as the indispensable basis of every method of education, any scheme or system which is not so founded, which does not utilize the native interests of the children with fullness and adequacy, must be condemned as wasteful, inefficient and positively destructive. The content of a subject of study, if it is to stimulate the children to effective activity with economy of energy, must be comprised of objects for which they have a felt value. Without the emotional attitude of desire occasioned by perceiving the relation that exists between an object and the internal needs of the self, all activity becomes aimless and perfunctory. Desire is the sustaining force of effort and it determines exactly qualitatively and quantitively the degree of power put forth in every effort. The force of the blow, the keenness of the seeing, the discrimination of the touch—in short, the power and efficacy of all activity, whether of sensori-motor adjustment by which skill of hand is attained, or whether of the fine discrimination and association by which imagery becomes bright and firm, and flexible habits of thought are developed, or whether of purely physical achievement, or of the moral forces such as patience, perseverance, etc., are determined to

[1]John Dewey—Interest as Related to the Will, Yearbook, Herbert Society.

a minute degree by the strength of the impelling force of desire acting upon the will. Hence waste of energy seems the logical and inevitable conclusion of a situation where the individual, child or man, is required to perform a task the object of which does not sustain a close and definite relation to some of his own needs. If the task be physical in nature the innervation of the muscles will be weak and their expenditure of effort small, and the co-ordinations will be loose and slovenly: if the task involves perception, in the absence of an incentive to a sufficient adjustment of the sense organs and to a preperceptive reinforcement of the incoming sensation, there will result the formation of weak, dim and possibly erroneous images of the object studied. And so activity in any field without interest will result in scattered imagery and weak mechanical habits which will prevent, perhaps forever, the development in these fields, of a situation of interest and of effective achievement. This condition of arrested mental development created by the long repression of impulse and the discouragement of the initiative appears almost irremediable when once established.

So the whole matter of waste in education and the permanent injury to the capacity for growth frequently arising from many of our school methods make the mode of the selection of subject matter of the highest educational importance. The mechanism provided by nature apparently as a means for the selection of those objects capable of realizing the needs of the self is the initiative of each individual child, the selective quality of his interest. As the freedom of adult life depends upon the possession of the power of free initiative, the possession of a similar freedom in the child as far as he has capacity to act, depends upon a similar power. No external, arbitrarily imposed mechanism of a system can operate in the place of the individual initiative without waste of energy and distorted growth. No external power is able to approximate the power of the individual consciousness to know its own state. No external power can know the character and number of all the experiences the summation of which constitutes the individuality of the self with sufficient accuracy and truth to warrant the imposition upon the individual of any but the most flexible of prescribed modes of action. What logic, in view of these facts, would attempt to impose a most fixed and inflexible system upon, not one but many individuals, all differing in the character of their constitution and stage of development? Moreover, what is the character of that reasoning which attempts to enforce the procedure of such a system in the face of the additional fact that all of the enginery which is to carry out the commands of the sys-

tem, the marshalling of the trains of ideas, the activity of the organs of sense and of motion, etc., are all under the absolute control of another will than that which imposes it? Whatever is the basis of such a logic, it is that of Swedish sloyd.

The objects which constitute the subject matter of sloyd are not of such a character as to create in children a permanent, fundamental feeling of their value as having power to realize their desires. When the original sloyd was reduced to exercises in wood many broad, fundamental and concrete facts pertaining to human activity in other lines of industrial work were excluded and the intrinsic interest of the subject was correspondingly diminished. When for the sake of grading, the objects for construction were restricted to a selected few, the most of which were small and unimportant articles of household furnishing, the work assumed an abstract character but a step removed from the type forms of purely preparatory exercises which they were intended to supersede. In view of the extremely limited field, the grading and the imitative method, the opportunities for acquiring much positive knowledge of either a social or scientific character are extremely limited. The sloyd pupil learns the technique of a considerable number of tools; he learns the useful and aesthetic qualities of several kinds of wood; he gets some concrete knowledge of cabinet-making, and this is about all.

The source of the interest which is to sustain him in the acquirement of this knowledge and which is to make it effective, is chiefly the interest felt for activity for the sake of activity and in the value attributed to the objects made as finished wholes, having a familiar use. The theory of sloyd overlooks the demonstrated psychological fact that the interests of children of the sloyd age, from eleven to fifteen years of age, is not in simple activity but in that activity and in those objects which appear necessary as means to accomplish desired ends. To claim that the sloyd models appeal to the child as sufficient ends in themselves, capable of satisfying his felt needs, is to discredit and undervalue the strength, variety and worth of the child's impulses to action. Without this interest the aims of sloyd are unrealizable. Instead of the inculcation of the love of labor there comes a dislike for it. Instead of a flexible habit of sensori-motor adjustment, there comes automatic, unaccommodated action; instead of concentration of attention there comes divided attention; instead of patience there comes stupidity; instead of self-reliant activity, there comes a habit of dawling.

Moreover, the practice of imitating with minute exactness an arbitrarily selected model or series of models having as the sole end in view

the degree of accuracy obtained in the imitating, undermines the initiative power, making the will more dependent, and is therefore obstructive to normal growth. Desire does not proceed in the uniformly progressive way of the sloyd models. I do not think that the problems which naturally occupy a child's mind follow each other in any way analogous to the graded plan. Even if it did so develop, no power could know the particular degree of advancement it has reached, to such a fine degree as the gradation of models in the Swedish system make necessary. Desire goes on not by carefully adjusted steps, but rather it goes on by leaps and bounds as in response to the problems of life's necessities advanced conceptions are thought of. Although the realization of these conceptions may be difficult and beyond the present powers of the self, the mind does not recede from the position but begins to fortify itself in it. *It is in this filling-in process of building up the gap between present abilities and the realization of desires that models and drills of like nature have their legitimate function.* They are modes of practice for achieving a technique—a technique the need of which is urgently felt by the self for use in accomplishing some ulterior purpose or problem. The finished model has one other use. In the creative process in which the child is attempting to express his desires in the construction of some independent object or solution of some problem, after the initiatory steps have been taken by the child, a model is useful in establishing standards of taste and workmanship and in stimulating effort to reach these standards.

It will be noticed, however, that both of these functions lie within the sphere of a larger scheme of constructive work, a scheme which permits a freer play of the child's initiative in various constructive activities. Creative manual training, including woodwork, textile work, cooking and modeling, all the forms of elementary constructive work, has been devised as the method by which the child's problems may be utilized for education. This broader system of manual training is being developed in the belief that the power of free will, of which the most striking characteristic is the power of self initiative, is of first importance, not only because it is the attitude of mind by which truth is discovered everywhere, but also, because of the unifying power in the self, it furnishes the only true basis for the correlation of knowledge. It is in the control of the situation which a self-imposed problem brings, that facts find their true relations in the mind, and powers are organized and co-ordinated. In the light of the belief that correlation is eminently a mental state, developed in the organic activity of the self in realizing

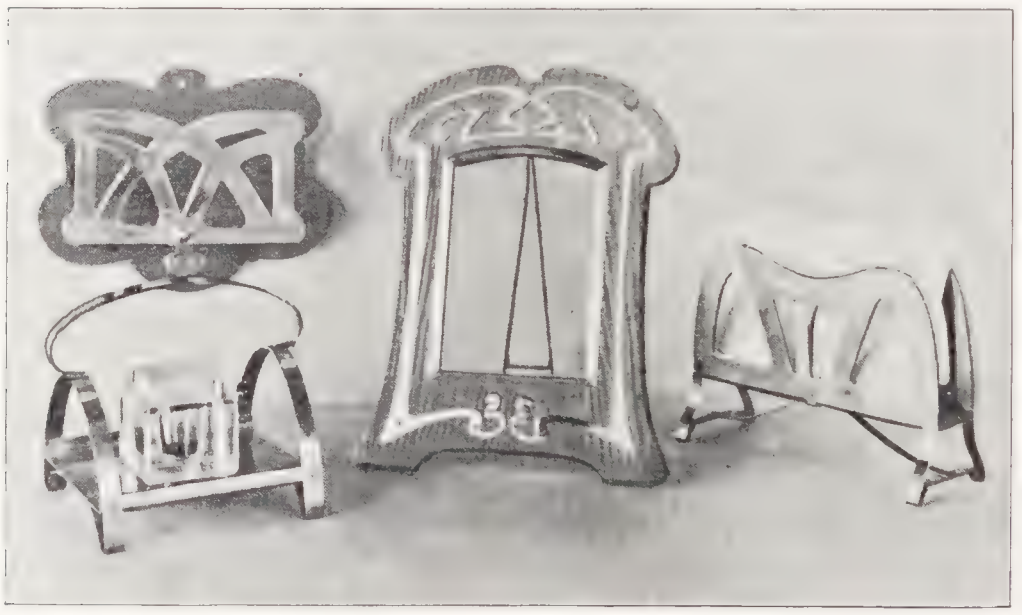
some problem, how clumsy and futile appears that purely external, empirical thing called correlation in the schools: the flimsy connections set up between the various studies; the carefully graded plans, models and courses of study.[1] Moreover, treated in the light of a disciplinary method, creative manual training, since it enlists the active interest of the child, can develop more effectively the powers of precision, skill and accuracy of judgment, love of labor, patience, etc., which are the principal formal aims of the sloyd system.

The conception of the place which constructive handwork should occupy in the elementary school as a method by which its activity as a whole is to be carried on by furnishing a natural basis for its correlation and co-ordination, foreshadows the entire reorganization of public school work.[2]

In this reorganization and reconstruction I foresee no place for Swedish sloyd. As a compromise between the purely disciplinary exercises of the Russian system on the one hand, and the freedom of the creative plan on the other, possessing neither the facility for acquiring the preparatory technique of the first or the necessary freedom of the child spirit of the second, it bids fair to sink from sight as all compromises have done, as a merely transitional step, no longer useful when the higher ground has been reached.

[1]John Dewey—Place and Manual Training in the Elementary school. Manual Training Magazine, Vol. 2.

[2]John Dewey—School and Society.



MADE BY STUDENTS AT BRADLEY POLYTECHNIC INSTITUTE. DESIGNS TAKEN FROM OR SUGGESTED BY SCHABER'S "SKIZZEN ZU METALLARBEITEN."

A PROBLEM IN MANUAL AND GRAPHIC ARTS.

Oscar Lincoln McMurry
George William Eggers

The Arts; "*The disposition or modification of things by human skill to answer the purpose intended.*"

Art: "*The adequate and harmonious expression of an idea.*"

BEYOND its disciplinary or encyclopedic value, any study is worth the student's attention only in proportion as it touches vital human interests. The Arts, while taught with full recognition of the valne of hand-discipline and tool-mastery, have not often been approached in such a way as to develop their broader relations to human activities. The recognition of these broader human interests in the methods today employed in the teaching of Geography, History or Economics has greatly increased the general value of these subjects over Geography and History as taught a generation ago. The Arts would, of course, touch most closely the productive activities—the productive activities, in turn, not

only demanding the Arts as vital to their very existence, but presenting the most important of opportunities for the expression of that thing which we designate as Art.

In accordance with the above, the choice of projects in an Arts course for children would, of course, be made from those things which constitute the children's world—would be made with some idea of meeting the needs the child observes about him. The personal expression of the child lies in the way in which he meets these needs. At this point he is standing at the gateway of a great field of choice and in his repeated choosing lies the training of the child—a training in right thinking, a training in practical conceptions—the actual *living* of his theories; while above the meeting of the need in the most adequate manner possible, lies his expression of delight in the living—the thing that men of all ages have known as Art.

Problems that touch vital human interests in a way that is obvious to the child himself, while at the same time involving the rich body of knowledge which the teacher seeks to present and the application of such principles as his work in Art has taught him, might be analyzed after a scheme like that which follows. Projects of this kind are found by considering the needs arising in the child's environment, particularly in the home and in the school.

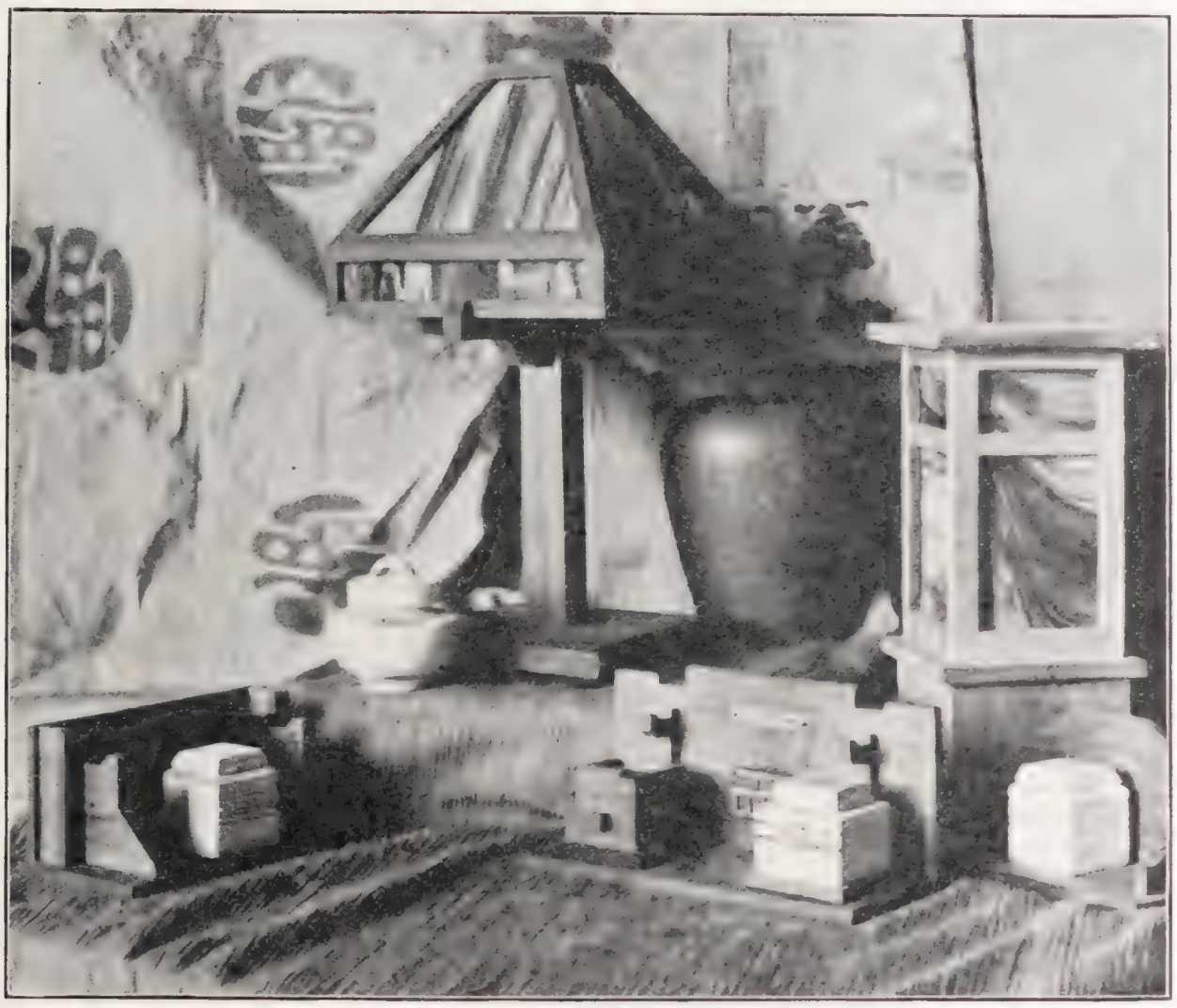
I. Structural considerations—how best to meet needs under consideration.
   1. Purpose of thing to be made.
   2. Historical development by means of
      (a) Study of history,
      (b) Visits to libraries, museums, factories.

II. Aesthetic considerations—how best to express *idea* of object under consideration, by means of treatment as to form, color and possible decoration.
   1. Recognition or expression of purpose,
   2. Recognition of traditional influences,
   3. Recognition of prospective environment.

(While the structural is invariably fundamental to the artistic, it is impossible adequately to consider the one apart from the other at any step in the problem.)

We will propose that such projects as the lamp, the screen and the clock be tested as to their fulfillment of the demands which we make upon an Arts problem, and to illustrate a test of this kind, we herewith present in some detail the application of the scheme to the selection and the "adequate and harmonious" encasement of a clock movement.

It will be seen that the clock idea might suggest a problem ranging anywhere from the encasing of the simplest of spring-clocks, structurally and aesthetically capable of adequate treatment in the grades, to the encasing of the spring or weight-clock with its added detail in the form

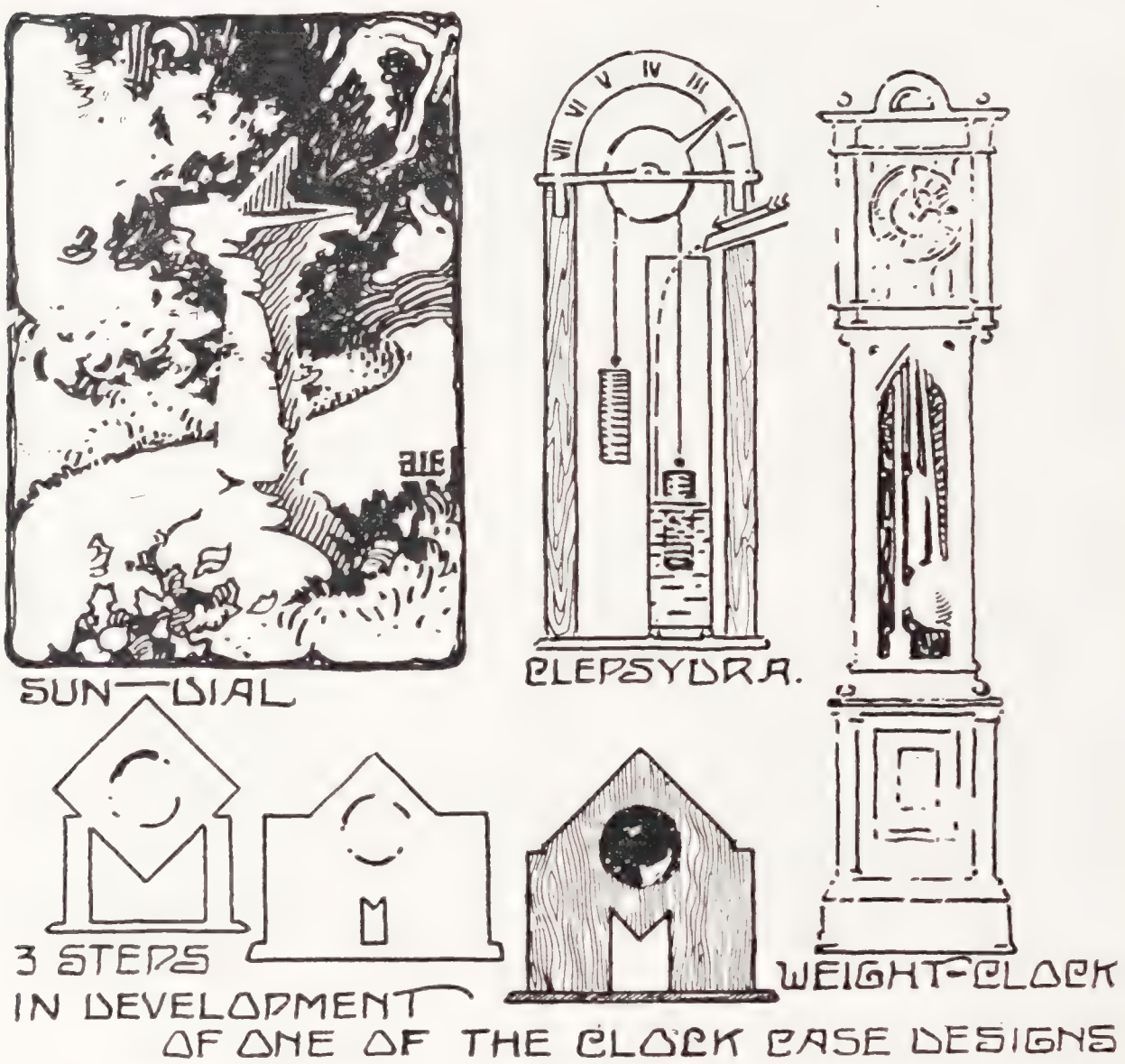


of gong or bell and movement for same, involving materials, tools and treatment suitable for high school—or even the still more elaborate and elegant instrument for which the student might himself fashion the gongs or chimes. The attendant knowledge of accoustics, involved would make the last a problem suitable for a college, art or technical school.

The problem which we submit would touch the middle of the group suggested in the foregoing paragraph, and is one which was worked out at the Chicago Normal School under the departments of the Manual and Graphic Arts by a group of R. T. Crane scholarship students.

(From this point we have preferred, wherever practical, to leave our considerations in the open outline form, suggestive of the direction of a possible class discussion.)

The idea of the modern clock—an instrument—a piece of furniture. Its purpose—the locating of the hour—the minute. The predecessors of the clock—the sun-dial—its structure—(how is the sun-dial laid out?) disadvantages of the sun-dial. The clepsydra (water-clock)—medieval



time piece—"Played upon flutes the hours of the night when they could not be read upon the index." Weight-clock (Dutch clock, "grandfather" clock)—how developed from the above—use of chimes—influences which produced characteristic form of case, e. g., weight and nature of movement—necessary elevation of dial. Spring-clock—advantages over preceding—why now in common use—the clock of our problem.

Essentials of a clock. Relative importance of dial, hands, movement, case—importance of dial—development of the hands—the movement the center of life in the clock—consequent importance of using great care in selection of movement.

Considerations in selection of movement. If from old clock—condition, size, convenience of adjustments. In case of new movement—investigation of standard makes (quality of materials, workmanship)—adjustments and attachments.

Devising of Case. Materials available and their characteristics. *Clay*—whether cast or moulded, a durable medium unaffected by temperature or moisture after firing, but a great conductor of vibration (objectionable in clock case? If so, how possibly overcome?)—capable of being freely modeled—responsive to fingers, hence expressive of personality of user—what form of handling most appropriate—use of tools much or little—employment of clay's susceptibility to human touch for adding character to subject made—capabilities as to color, texture, surface decoration by means of glazing and firing.

Metals—cast or used from sheet with lapping, riveting, soldering, welding. In some constructions conductive of vibrations, in others resilent—expansion to heat—influence of metal on tone of gongs encased—how met—capability of being bent, hammered, moulded into a variety of forms, of being freely pierced—effective when used with glass, tiles, woods, etc.—capability of treatment by annealing, enameling, lacquering, oxidizing, etc.—the beauties of the "highlight."

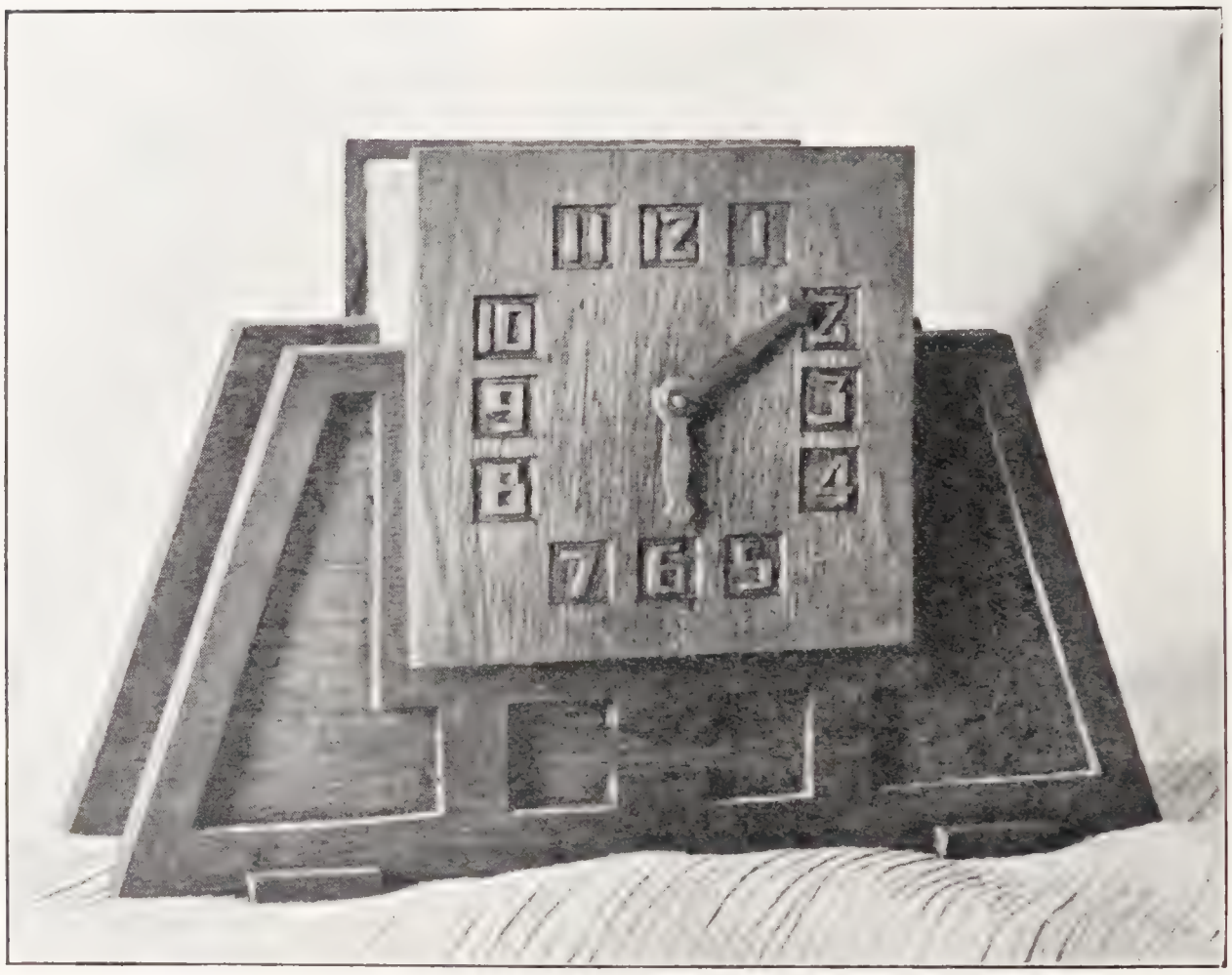
Wood. Influence of the fiber—resiliency—non-conductivity of heat—influence of moisture on wood—how overcome—influence of wood on sound—direction of fiber, how to be recognized in handling, appropriateness of bending—propriety of line-decoration, veining, grooving, etc., possible uses of pyrography. Capabilities and characteristics of various woods and cuts as to marking, color, texture, and susceptibility to finish—use and abuses of veneering, planting on, inlaying, staining, enameling, painting, carving—beauties of two-plane carving—use of wood with other materials as glass, clay, metal, etc.

Glass, clear, stained opalescent—friability, how overcome—possibilities and appropriateness of glass as encasing medium for clock (attractive appearance of movement considered)—in stained and opalescent glass the possibilities of color—glass used with other materials.

General characteristics of clock under consideration. Importance of recognizing these in general design: complex instrument (as chronometer) or comparatively simple one? Resultant influence on treatment of case. Specific character of clock under consideration. Its place (involving specific purpose) e. g., the character of parlor clock and kitchen clock contrasted—harmonization with prospective environment—limitations as to skill, time, material available—proper enthronement of dial

as well as adequate and characteristic encasement of movement employed.

Treatment of the dial and the hands. Available materials and their possibilities (see above)—desired legibility of figures (e. g., Is it desirable to have the clock in the drawing room advertise the time with as



great distinctness as the clock in the kitchen or office?)—distinction between hands.

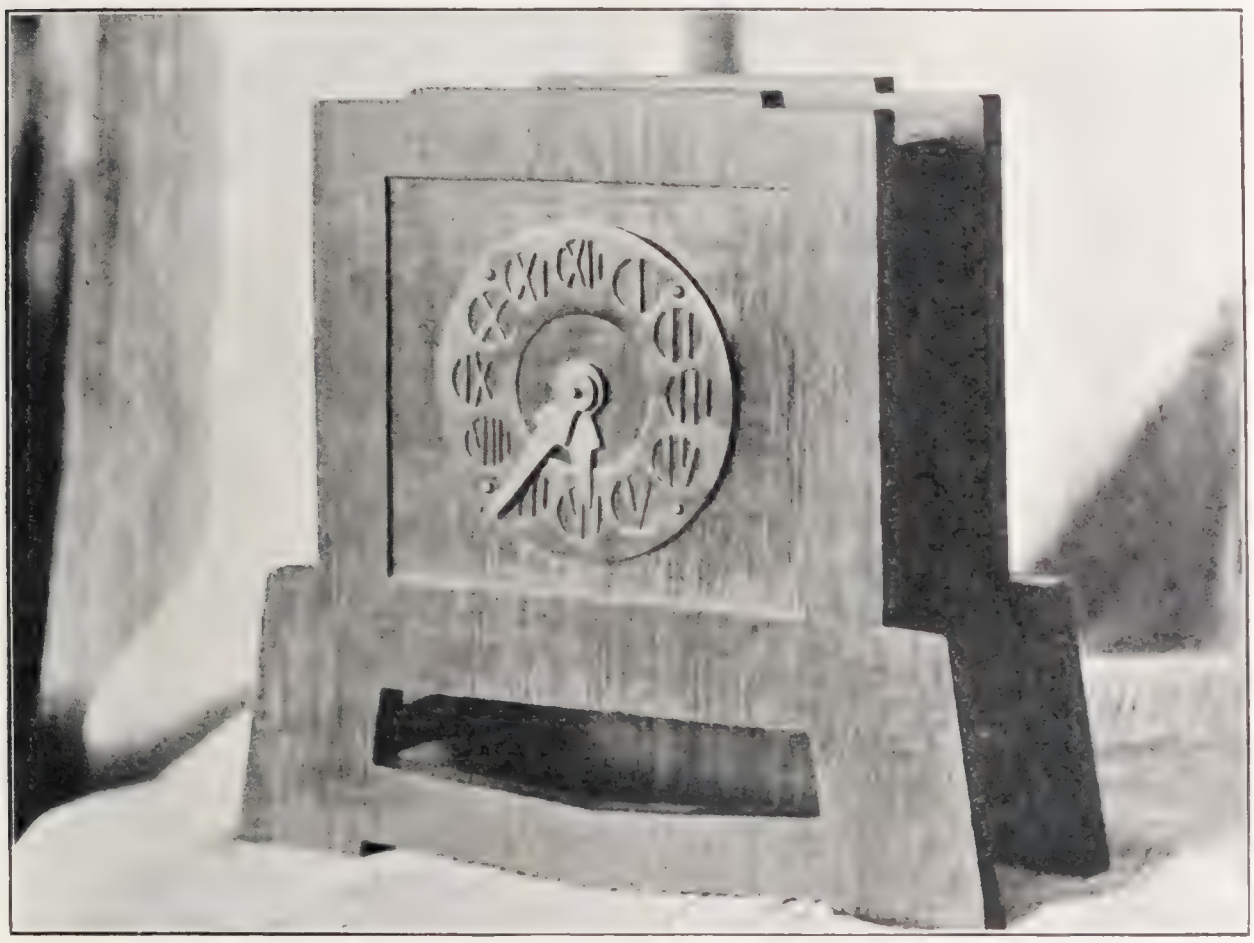
Chimes, gongs, bells. Regard for beauty of tone and adequacy of sounding chamber—how to determine latter.

Development of drawings—(1) Freehand sketches (feeling for good form and proportion)—(2) Working drawings (the further objectifying of the idea)—(3) Possible model in wax or clay (if a carved case)—(4) Color sketch.

In the working out of the idea, materials for the case were selected from woods such as maple, birch, oak, cherry, walnut, mahogany; such metals as copper, brass and silver; from clay and clear, stained or opalescent glass. The construction of case involved, in some instances,

paneled frame work (with dowel, mortise-and-tenon, tongue-and-groove joints) in others, box or cabinet form (with butt, rabbet, mitre and dove-tail joints) or even in one case the construction being fashioned from the solid block.

Dials and hands were in some instances cut form wood, with figures in relief or incised; in others shaped from copper, brass or silver, pierced,



etched or in repousse. The clay dial with hands in metal offered one of the richest of opportunities for expression.

Oiling, waxing, staining, fuming, filling and varnishing gave variety in the finish of cases, while dial and hands, polished, oxidized, lacquered or enameled presented well contrasting textures.

Tests for time-keeping and tests for tone of bells and gongs were made after the encasing of movement and attachments was completed.

The problem recorded—notes in note-book—blue-prints from working drawings—photographs of objects made.

Comparison and class criticism of objects made.

Discussion of broader relations. To be illustrated with pictures of clocks noteworthy in history, science, travel—clock industry and influence on localities—sources of expense in time-pieces (as discovered

while investigating and selecting movements)—the clock, a factor in our daily life as compared with its importance in the past.

The problem before the school—"The clock in legend and song."

NEEDLEWORK IN ITS RELATION TO ART.

KATHERINE FRENCH STEIGER.
Supervisor of Domestic Art in the schools of Rochester, N. Y.

THE value of the manual arts as an integral part of public school instruction is no longer questioned. Without entering into a pedagogical discussion of their merits, it seems safe to say that academic work gives an increased value to handwork, while hand exercises in turn strengthen the thought work. The more fully we recognize this inter relationship of subject matter, in formulating basic principles upon which to establish a course of study, the more vital the results therefrom.

Of the three manual arts considered as educational factors—manual training, art and domestic art—the latter seems slowest in attaining its full development. There was a time when only the boy of a mechanical bent, was given a training in the handling of tools; when only the child supposed to be favored by the gods with a fine, esthetic appreciation was considered worthy of a drill in the rudiments of art. But these hand-exercises, manual training and art, have now a fixed place in the curriculum of the secondary as well as of the elementary school. Domestic art however is developing more slowly in the evolutionary processes of manual work.

In the elementary school the course is usually plain needlework, with little emphasis on harmony of color, beauty of line, choice of material, or the relation in general of decorative art to needlework. The course in the technical school usually includes the drafting of patterns, dressmaking and millinery. If one seeks the art side of this work, it is usually difficult to find, although an inquiry generally brings the reply that original design is encouraged. In the university, if "the twentieth century education for woman" is attempted under the name of "home economics," one finds such testimony as the following: "My present idea is that sewing is not a university subject, but that *dress* may well be, though I know of no course being given that comes up to the possibilities. It seems to me that there is an opportunity for an important educational movement in this direction." I quote from a letter written by the director of the home-economics department in a university of the Middle West.

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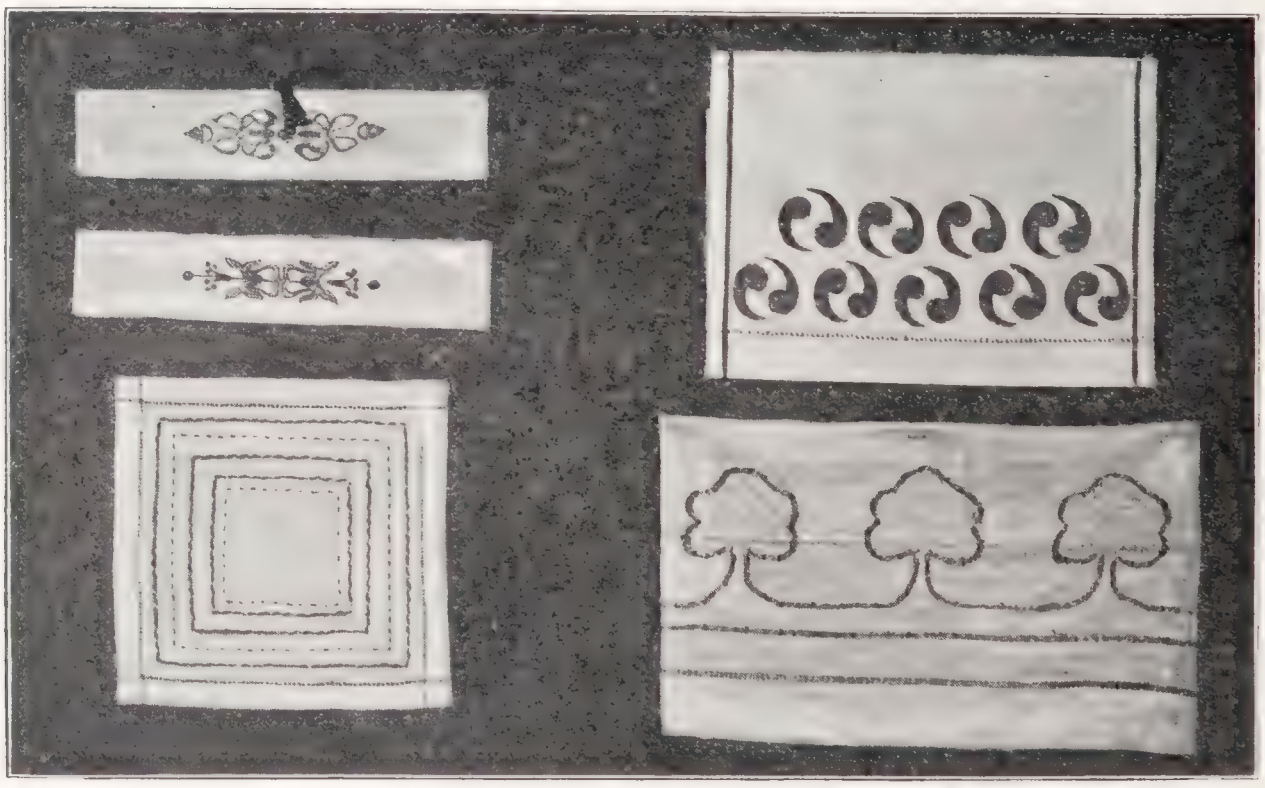

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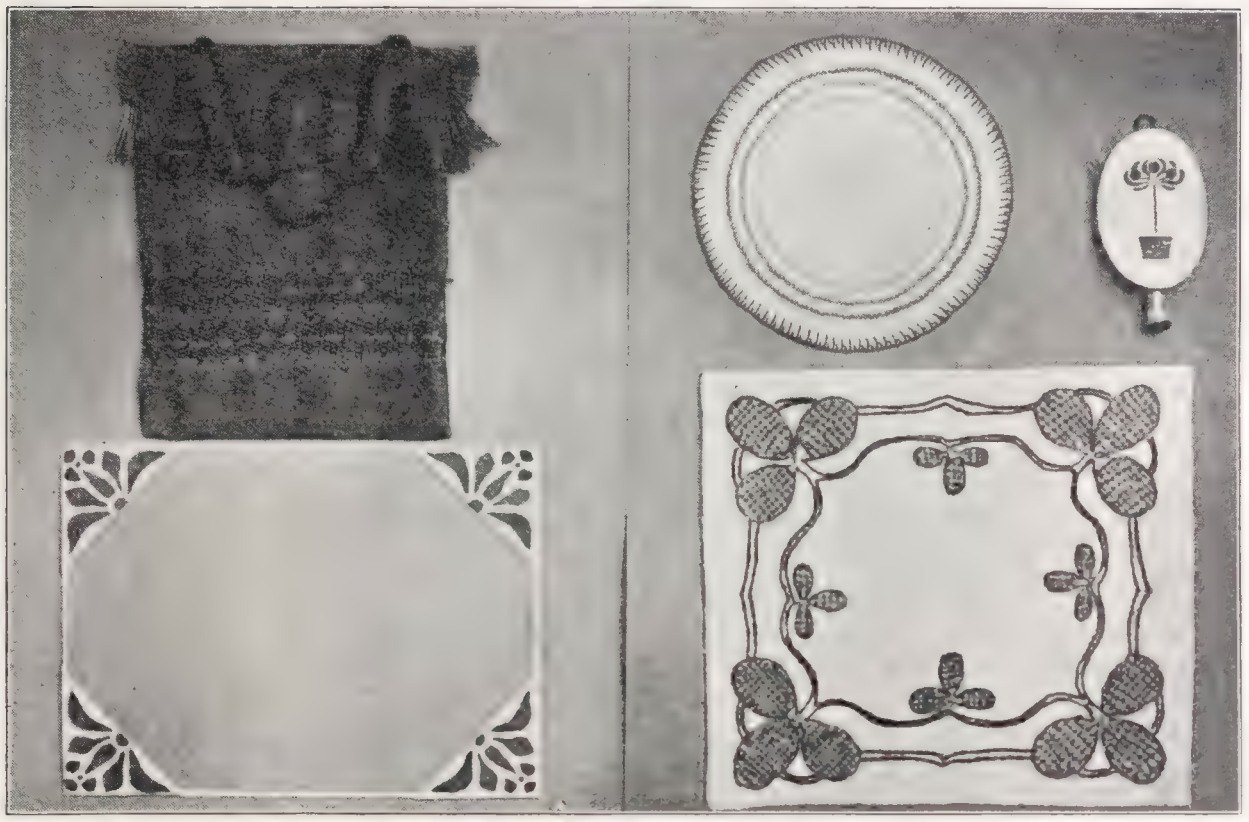

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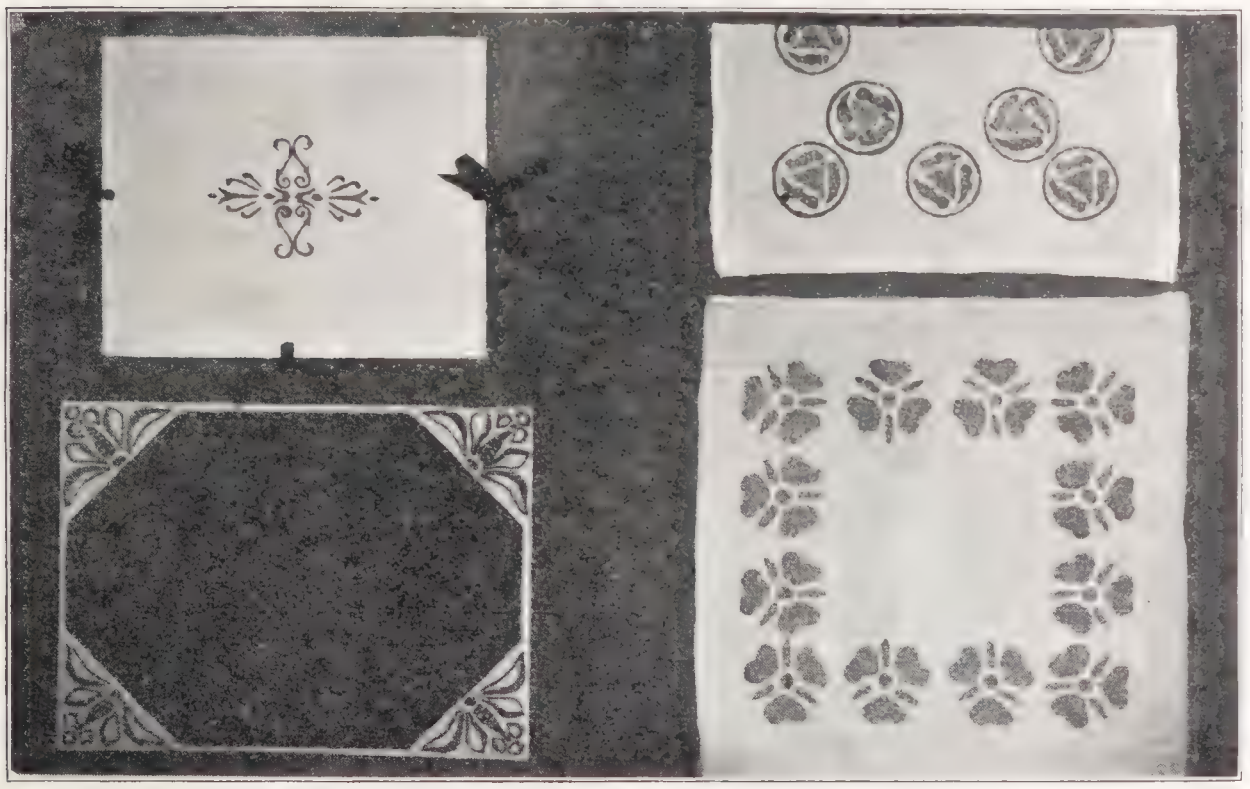

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COSTUMES MADE BY PUPILS OF THE SIXTH GRADE IN CONNECTION WITH THE STUDY OF GEOGRAPHY AND HISTORY.

Let me supplement this statement with the words of a superintendent of public instruction in one of the Eastern cities: "Sewing is an old art. It has a direct bearing upon the personality of every individual, and the attractiveness of the home itself. The fine touch of a skilled hand will make beautiful even a plain and desolate home. Nothing so emphasizes poverty and lowers still lower the standard of the home as the lack of taste. No skill commands a higher price in the market than that which provides the beautiful in either decoration or dress. No instinct in woman is deeper than the love of these things, and nothing can be more certain than that this instinct should be developed and cultivated early and carefully as a part of her preparation for life. If this be true, all that has been done in this form of training thus far should be only a beginning. This subject gives opportunity for individual initiative and activity which reaches far beyond the schoolroom."

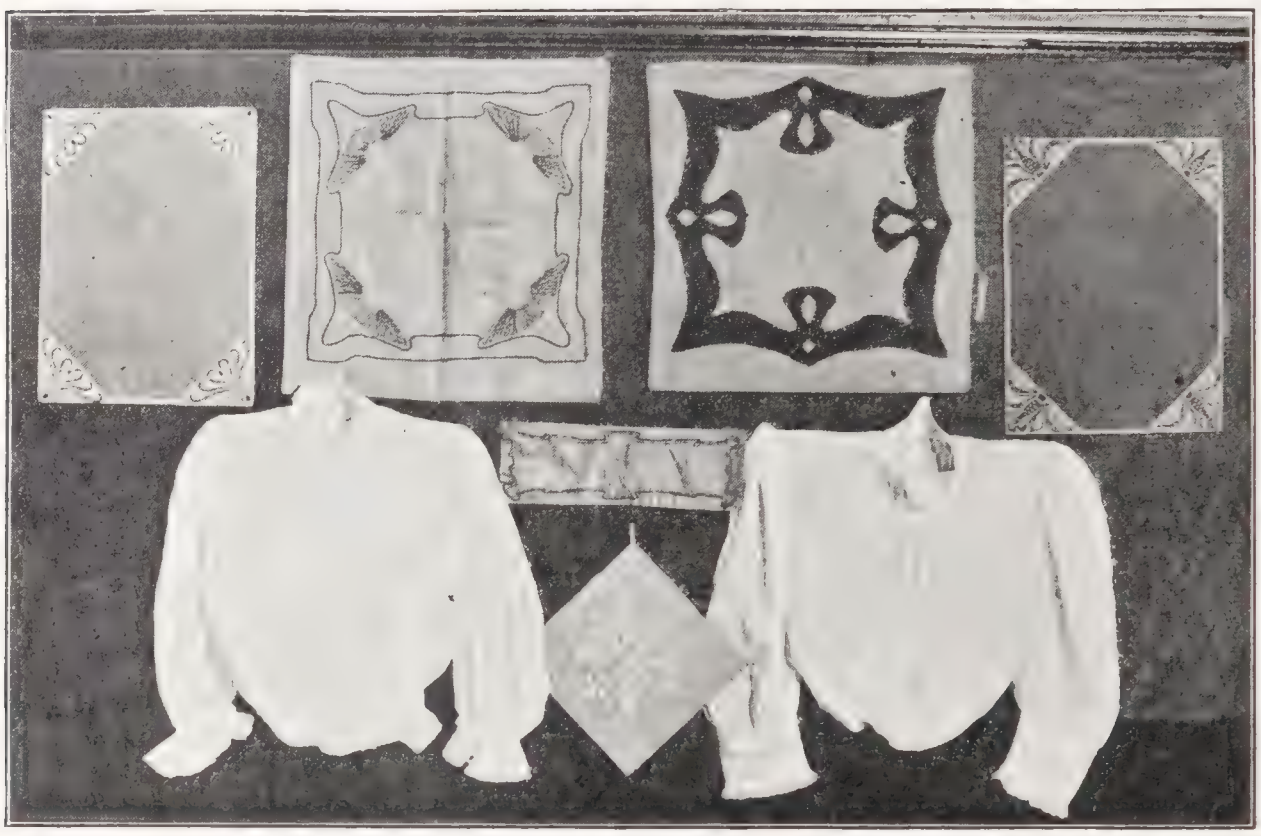
So we are beginning to realize that needlework is an art as well as a need; that this art includes sewing plus many rich possibilities, ethical, economic, industrial, and esthetic.

Education is not static; to be of worth it must adjust itself to changing conditions. Home and industrial needs claim the present hour. The home-maker must be trained if we would have comfortable and restful homes. Trade schools have never indicated more plainly than to-day, the need of recognition in educational thought. That girls must have an intelligent training in order to earn a living wage, that they should be saved from the poverty and shiftlessness that lead almost inevitably to wrong doing, that home-manufactures can only compete with the foreign market through the results of skilled labor, are facts that can not be ignored.

This movement toward a broader special training for women is not only national but international. From distant India came a call last month for a worker trained in the Teachers College, Columbia University. Not because American women possess the technical skill which centuries of inheritance have transmitted to European and Oriental workers, but because something more is needed than skill of hand—a trained judgment and taste, a broad human sympathy, an ability to meet new and varying situations.

In the schools of Rochester an effort is made, in a small way, to make the course in sewing sufficiently broad to meet the requirements of this educational movement. A manufacturing center of no small importance, and a city of attractive homes, the domestic art problem here is an epitome of the larger world problem.

The course of study does not overlook the practical side or neglect the plainer forms of needlework. Even a repair corner can be found in some of the schools where needles, thread, hooks and eyes, a brush-broom, shoestrings and towels are always in readiness for the use of those who have been careless of essentials in the home. Articles of



MADE BY STUDENTS OF THE TRAINING SCHOOL. DESIGNS ORIGINAL.

wearing apparel, button holes, darning and patching receive due attention, but during the second semester emphasis is laid on the work in applied design, because there is no exercise which seems to afford so large an opportunity for developing thought and individual initiative. Each pupil has a part in deciding what shall be made, selects suitable material, calculates the quantity and cost, purchases or assists in the purchase of it, creates her own design, applies and executes it.

It is needless to say, that results, meager though they be, would have been impossible of accomplishment by the sewing department working alone. It is through the cheerful co-operation and untiring energy of the art supervisor, Miss Helen E. Lucas, that an encouraging beginning has been made in this work. Miss Lucas and her assistant had laid a solid foundation in the study of color harmonies, related masses, balance of parts, and rhythmic movement. It remained for the classes learning needlework to give these principles of design a tangible

form by application to various textile fabrics. The faithfulness and responsiveness of the grade teachers also aided materially in making this correlated exercise possible.

The course in applied design outlined for this semester is as follows:

FIFTH GRADE, B—Initial letters applied to the sewing bag.

PUPILS OF AN EIGHTH GRADE CLASS DANCING THE MINUET—A RYTHMIC EXERCISE CORRELATING PHYSICAL TRAINING AND DOMESTIC ART.

FIFTH GRADE, A—Border design for a rectangular needle-book, or design for the cover of a telephone pad.

SIXTH GRADE, B—Design for a book-cover to be applied to sewing note book.

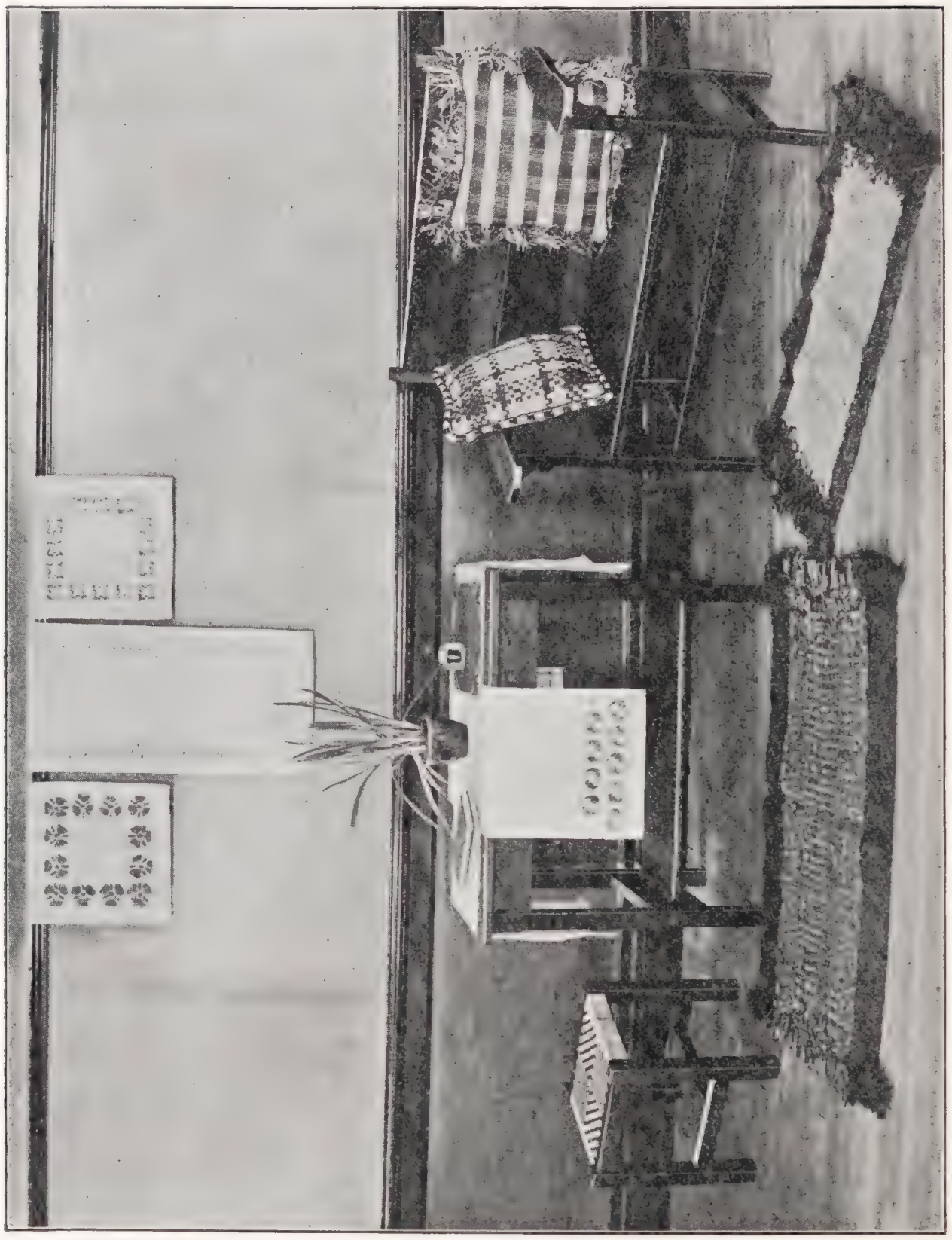
SIXTH GRADE, A—Design for an elliptical brush-broom holder, or for a circular pin-case.

SEVENTH GRADE, B—Design for a doily—circular or square.

SEVENTH GRADE, A—Design for a collar case.

EIGHTH GRADE, B—Design for a pillow cover or a handkerchief case.

EIGHTH GRADE, A—Design applied to a portfolio, a blotter-pad, a table runner or a dresser scarf.



A STUDY IN HOME FURNISHING BY PUPILS OF THE SEVENTH AND EIGHTH GRADES. (THE TEXTILES ON THE WALL ARE NOT INTENDED TO FORM A PART OF THE INTERIOR).

The minimum cost of materials for these exercises has been two cents for each article made; the maximum cost fifteen cents, the exception being only where pupils preferred and paid for a better grade of goods. The children furnish their own materials, and the article when finished goes into the home.

Two years ago when this work was first attempted indigent pupils were supplied with necessaries, but as interest grew, this need became less. During the present year almost no material has been furnished. In some instances pupils have been slow in bringing supplies. As an expedient the principals have furnished materials with the understanding that the article when completed be paid for by the pupil or become the property of the school. In every case, and there have been but few, the pupil paid for and claimed the article she had made.

In some schools the pupils have made costumes in connection with geography, history and literature courses. This work is largely undirected, the children utilizing odds and ends of textile materials found in their own homes. One photograph represents the national costumes of European countries, studied in connection with geography. Each child dressed her own doll after selecting suitable materials and planning the costume for it. Another shows a rhythmic exercise given at a school entertainment on the twenty-second of February. The girls planned and made the Martha Washington costumes worn. The cost of the materials was taken from the school fund which was afterwards reimbursed by the Mothers' club of the school.

A few schoolroom studies in house-furnishing, correlating manual training, art and domestic art have also been attempted. The simplest of these problems, the planning of a sewing room, has reached completion. The care and equipment of a bedroom, and the renovation of a reception room have been begun. In the interior everything shown in the photograph was made by the pupils except the books and the jardiniere. The rug before the settee was made of an old Paisley shawl, rich in color, but beyond use as an article of wearing apparel. The children darned it in many places before it could be woven into the borber of the rug. The book-shelves, which are in an eighth grade classroom, show a similar correlation. The boys made the shelves, while the girls hemstitched and decorated the curtains.

Owing to the crowded curriculum and the time limit, each pupil creates but one design in the school year. The effort is a feeble one, but it seems to be a move in the right direction. Over-elaborate, shop-stamped patterns are no longer seen in the schools, while a business

manager in one of the department stores testifies to a marked "falling off" in the demand for tawdry art goods.

As the need of handwork in the school curriculum has made itself felt, so the need of a practical art which can be applied to everyday things is plainly indicated. If there is a universal need of art knowledge, happily the principles underlying art have been reduced to a workable basis. There are definite rules of color and design, a limited acquaintance with which trains the eye to a helpful discrimination in hue, form and line. Instead of tending to dwarf individuality or attempting to train impossible artists, these rules stand in the same relation to life as the Scotch collie does to the sheep his master is leading to green pastures. If the flock deviates from the desired direction the collie forces it back into line, but within the prescribed boundaries, each sheep is free to move as he will.

In conclusion, I would say, it seems to me there is no exercise in the entire work of the grades where the application of art principles can be wholly omitted. Even the adjustment of a hem can witness to a knowledge of esthetic values or a lack of such training.

BOOK-SHELVES IN AN EIGHTH GRADE CLASSROOM. CORELATION OF MANUAL TRAINING ART AND DOMESTIC ART.

EDITORIAL.

Our Next Volume

This number completes the eighth volume of the MANUAL TRAINING MAGAZINE and closes the second period of its development. As many of our readers know, this magazine appeared first in October, 1899, and for four years was printed and distributed by the University of Chicago Press. During that time it became so seriously involved financially that some change was absolutely necessary; it must be subsidized like most professional publications of its class or be more economically managed so that receipts would equal the necessary expenditures for printing and distributing. As opportunity for the former did not present itself the latter course was adopted. The office of publication was removed to Peoria and the Manual Arts Press organized. Immediate steps were then taken to strengthen the editorial staff. Three men were selected, and each one, as soon as he understood the situation, cordially gave his support to the new plan and consented to become an associate editor. This brought to the staff of the magazine Professor Charles R. Richards, Dr. James P. Haney and Principal Charles F. Warner. Ever since the first issue under the new organization the magazine has gained in strength.

Now the time seems ripe for another step forward. For eight years the Magazine has appeared only four times a year, but during the past two years there has been an increasing demand that it be published oftener. At first this was thought to be impossible, but the persistency of this demand and the editor's desire to make other improvements have led to the decision to publish the Magazine bi-monthly beginning with the next issue. Each number will be larger than at present, more attractive in appearance, and, we believe, more helpful. (See announcement in advertising pages of this issue). In making these changes we believe we are acting in accordance with the wishes of our subscribers, and we earnestly solicit the same hearty support and co-operation for the future that we have received in the past. We shall aim to make the Magazine worthy of the profession it represents.

Value of Manual Training

Our attention has recently been called to an interesting testimony on the value of manual training. *The Dental Cosmos* for May contains an article on "Manual Training an Essential to Dental Education," by Dr. Burton Lee Thorpe of St. Louis. This article was read before the National Dental Association at Atlanta, Ga., last September. Dr. Thorpe begins his paper by calling attention

to the fact that the majority of men who have become famous as dentists have been skillful in some other kind of handwork before taking up dentistry.

As many of them were mechanics, who would gainsay that the preliminary training obtained in the occupations of blacksmith, barber, traveling tinker—all honorable vocations—did not make it possible for our professional forefathers to accomplish what they did? For instance, Hayden, whom we may safely denominate the "father of dental science," was a carpenter and architect; Eleazer Parmly was a printer by trade; W. H. Atkinson and W. W. Allport were both tailors' apprentices; Elisha Townsend was a watchmaker in his early youth; Elisha Neall, a traveling tinker and clock and watch repairer, while many others followed similar vocations, or obtained a crude manual training in early youth on the farm, which is one of the best schools to give the man self-reliance and manipulative dexterity; for it is a fact that when a man is able to *do things*, both mechanical and artistic, he possesses a degree of self-reliance, self-mastery, judgment, and poise of character obtainable by no other means.

Dr. Thorpe then says that "probably the best fruit of manual training is the habit of mechanical analysis, which can be learned only by actual work with tools and materials." Later he calls attention to the fact that manual labor enters very largely into the life-work of a dentist and points out that the "underlying fundamentals are mechanics combined with art." Then follows this testimony:

The writer has been a close observer of the results of manual training, and has noted that the students who have taken this course prior to studying dentistry make very superior dentists—far surpassing the untutored fellow student in technic work. Personal experience, as in manual training, is the only effective way to train and develop the brain cells which control the movements of the hand, and the value of this method of preliminary education to those who would take up the study of dentistry cannot be overestimated.

It may be contended that the dental student has sufficient manual training in the laboratory courses in our schools. Preliminary educational manual training is not training the hand to turn out finished products, as in the laboratory, but the training of the brain through the faculties of perception, with elemental studies of beauty, harmony, precision, and accuracy; and although this of course, may result in some finished product, still it is not the hand-produced article, but the impression made upon the mind, that is to be valued. If the student be slow of comprehension, dull, uninterested in the principles of mechanics, unable to see beauty in perfectly executed operations upon wood or other materials, and after careful training is not properly impressed with the value of "accuracy of angle and precision of surface," how can he hope to succeed in the practice of dentistry, which is largely a continuation of these precepts requiring much care and skill in their execution!

The writer fully believes that if a course in manual training were a preliminary requirement to the dental college curriculum, the same as an academic preparatory course is a requirement for entrance to any of our great universities, all dentists of the future would be so thoroughly equipped in technical skill that each would be competent to practice dentistry with a creativeness that would greatly enhance the worth and standing of dentistry.

ASSOCIATIONS

THE CLEVELAND MEETING

The convention of art and manual training teachers held in the city of Cleveland from the 8th to the 14th of May will long be remembered as the first joint meeting of the Eastern and Western associations. A year ago in Chicago when Superintendent Elson invited the Western Drawing and Manual Training Association to meet in Cleveland, it was hoped that such a joint meeting would be the result, and, thanks to the officers of the three associations, it did. The meeting was a success and very likely will lead to another joint meeting in the future. Already Pittsburg has been mentioned as a possible place.

From the beginning of the convention to the end the Cleveland people were untiring in their efforts to see that every visitor was enjoying himself. From the address of welcome by President Haserot, of the Board of Education, on Wednesday to the automobile tour of the parks and boulevards on Saturday delegates were constantly being reminded of the genuineness of Ohio hospitality. As for Superintendent Elson, Miss Ellis and Mr. Roberts, they had the convention so well organized that they seemed to enjoy the meeting as much as anyone. Certainly the associations owe much to them and their co-workers on the local committee.

So many excellent addresses were given during the four days that it would be impossible to give even a synopsis of them here. Fortunately this is not necessary, as the three associations will join in the publication of a report of proceedings which will be made attractive with illustrations, and should find its way into the hands of most of our readers.

ADDRESSES

The first formal address was given by Sir Casper Prudon Clarke, Director of the Metropolitan Museum of Fine Arts, New York City, in which he advocated the establishment of a National Department of Art similar to the Smithsonian Institution at Washington, from which works of art should be loaned to schools throughout the country. In order to make this meaning clear he sketched the history of the South Kensington Museum of London, which has been a large factor in the development of art industries in England. The theme was highly appropriate for such an occasion and its presentation was scholarly. The address will be given in full in the proceedings.

In marked contrast with this, so far as personality of the speaker was concerned, was the address on Thursday morning by Henry Turner Bailey, editor of the *School Arts Book*. He was at his best—full of poetry, bright stories and helpful suggestions. His subject, "The School Booklet as a Problem in Manual Arts," was illustrated with numerous blackboard sketches.

On Friday morning addresses were given by James Hall and Charles R. Richards of New York City and William Price of the Rose Valley Shops, Philadelphia. Mr. Hall spoke of the coming International Congress of Drawing Teachers in Lon-

don, Mr. Richards on "The Relation of Manual Training to Industrial Education," and Mr. Price on "The Art that is Life." In the afternoon Albert H. Munsell of the Massachusetts Normal Art School demonstrated his new color system.

If the program committee were looking for a speaker with power to hold an audience of weary teachers after a day of the severest kind of convention work, they certainly found him when they selected Professor Charles Zebulin of the University of Chicago. His address on "Democratic Art" was thoroughly enjoyed.

The last address of the convention was given on Saturday morning by Dr. James P. Haney of New York City. His subject was "The Designer's Approach to his Problem." Each step in this helpful address he illustrated by crayon sketches made on large sheets of paper.

ROUND TABLES

By no means the least valuable part of the convention was the group of round-table discussions on Thursday afternoon. Many of the most helpful things were gleaned there. Among the speakers in the art section were Professor Frederick of Trenton, N. J., Mr. Daniels of Springfield, Mass., and Mrs. Smith of Newcomb College, New Orleans. In the manual training section were Miss Stiles of Chicago, who gave an interesting presentation of the subject of bookbinding in the elementary schools, Mr. Murray of Springfield, Mass., President Howe of the Case School of Applied Science and Professor French of the Ohio State University. President Howe set forth the ideas behind the new technical high school which Cleveland is is to have. He spoke of it as a school to train young men to become manufacturers, thus departing somewhat from the general educational ideal.

In the manual training section Miss Langley presented a report of the past year's work of the committee on handicrafts in the public schools, and in the art section Superintendent Elson gave a preliminary report of the committee on college credits in art and manual training.

THE EXHIBIT

The exhibit, which was installed in the new Watterson School building, was a center of interest throughout the convention. Eastern teachers studied it because they wanted to see what is being done in the West, and the Western teachers always find inspiration and help in the exhibits of such noted schools as Pratt Institute and Teachers College. Much excellent work was shown in both drawing and manual training, yet, one studying the exhibit as a whole could find out "what not to do" as well as what to do. In a sense, this is as it should be; contrasts are instructive to those who can see them aright. Certainly such exhibits are a large factor in the progress of our work.

The social event of the convention was the reception at the Cleveland School of Art on Thursday evening. Not only was the beautiful building at the service of the teachers, but a special loan collection of paintings was placed in the gallery and small exhibits of handicraft were shown in some of the classrooms.

BUSINESS MEETINGS

The business meetings of the associations were grouped together on Thursday and Saturday mornings. What seemed to be the one blot on the convention was the failure to amalgamate the Eastern Art Teachers Association and the Eastern

Manual Training Association. After two years of effort and with all the larger interests apparently on the side of combining the associations it seemed a pity that a few art teachers should prevent what, without a doubt the majority of both associations desired to have come to pass.

The Eastern Manual Training Association adopted a new constitution and by-laws, drawn up with the idea of enlarging the scope of the Association and dividing up the work connected with its administration. There was also in mind the thought of making future amalgamation with the Art Teachers Association easy if it should ultimately be desired. The place of the next annual meeting is yet to be determined, but it is expected that it will be held on the Atlantic seaboard. The following officers were elected for the coming year: President, John C. Brodhead, Boston, Mass.; vice-president, Fred C. Whitcomb, Oxford, Ohio; editor, Evelyn L. Winslow, Springfield, Mass.; treasurer, William F. Vroom, New York City; secretary of transportation, A. E. Dodd, Trenton, N. J.; secretary, Annie F. Burbank, Eastern Northfield, Mass. Mr. Vroom has since resigned and Thellwell R. Coggeshall of Philadelphia has been elected by the executive committee to take his place. Executive committee: For one year, William H. Noyes, New York City; for two years, J. A. Chamberlain, Washington D. C.; for three years, D. J. Alexander, Pittsburg, Pa.

The following officers were elected by the Eastern Art Teachers Association: President, Arthur Wesley Dow, New York City; vice-president, M. E. Van Wagonen, Pittsburg, Pa.; secretary, Margaret Sterling, Schenectody, N. Y.; corresponding secretary, Lilla A. Nourse, New York City; treasurer, Chas. C. McGregory, Brooklyn, N. Y.; secretary of transportation, Joseph L. Tilden, Brooklyn. Members of executive committee, Annette T. Warner, Fitchburg, Mass.; Dr. Langdon S. Thompson, Jersey City. N. J.; Eugenia Moses, Syracuse, N. Y.

The report presented at the business meeting of the Western Drawing and Manual Training Association proved that this organization is in a prosperous condition. The business administration given the Association by Miss Ellis during the past year, together with the reorganization of the work of the treasurer by Mr. Bacon and that of the secretary by Mr. Bawden, has placed all departments on a healthy working basis with a good surplus of funds in the treasury. The Association voted to accept the cordial invitation of Indianapolis to meet there next year. The following officers were then elected: President, Charles A. Bennett, Bradley Institute, Peoria, Ill.; vice-president, Emma M. Church, Chicago Academy of Fine Arts; secretary, R. A. Kissack, Yeatman High School, St. Louis, Mo.; treasurer, George F. Buxton, Stout Manual Training School, Menomonie, Wisconsin; auditor, Emily E. Bracken, State Normal School, Columbus, Ohio.

At our request, the president of the Eastern Manual Training Association, William Noyes of Teachers College, has sent the following brief estimate and summarized report of the Cleveland meeting from the standpoint of the Association he represents:

MR. NOYES' ESTIMATE OF THE MEETING

The Cleveland meeting was in many respects the most successful one in which the Eastern Manual Training Association has yet participated. The exhibit contained many choice portions, most noteworthy of which, perhaps, were those from the Bradley Polytechnic Institute, Pratt Institute and Muskegon, Michigan. The

weight of interest in the program balanced rather to the side of art interests, but that was as it should be in a gathering so largely made up of art teachers. The most noteworthy of the addresses from a manual training standpoint was that of Professor Richards whose plea was for a better understanding of actual industrial conditions as a basis for determining school shopwork.

It was a disappointment to most of the Eastern Manual Training Association members that the proposed amalgamation with the Eastern Art Teachers Association was not consummated, and to many it seemed that the failure of the Eastern Art Teachers Association to act did not fairly represent the rank and file of the membership. Up to the last moment there was a cordial willingness on the part of the members of the Eastern Manual Training Association to unite, but when the indifference of the officers of the Eastern Art Teachers Association was apparent, the opinion rapidly took shape among the Eastern Manual Training Association membership that two years was long enough to parley over the matter. The Eastern Manual Training Association therefore voted to change the proposed joint constitution sufficiently to make it suitable for the Eastern Manual Training Association as a separate organization, and in this form adopted it. This in no wise blocks the way for amalgamation in the future, whenever the Eastern Art Teachers Association cares to take up the matter in earnest.

Meanwhile the Eastern Manual Training Association is in flourishing condition, and its executive committee with Mr. John C. Brodhead of Boston as president is already making plans for a separate meeting next year. Washington is mentioned as a probable meeting place.

THE NORTH CENTRAL ASSOCIATION OF COLLEGES AND SECONDARY SCHOOLS.

The twelfth annual meeting of the North Central Association of Colleges and Secondary Schools was held at the Auditorium Hotel, Chicago, on Friday and Saturday, March 29th and 30th. On the day previous to the meeting a few members of the large committee on definitions in shopwork and drawing met in Chicago and formulated the following report, which was presented to the Association:

PRELIMINARY REPORT OF THE COMMITTEE ON SHOPWORK AND DRAWING IN SECONDARY SCHOOLS.

Five members of your committee appointed a year ago to formulate and submit definitions of units of work in the two departments of manual training, met yesterday to compare notes and to prepare at least a preliminary report. In spite of the fact that manual training is relatively new, and no committee of ten or fifteen has ever formulated its definition, your committee are in substantial agreement.

When we look into the condition of our high schools in the Central West, we find great diversity. The city schools make one class and the rural high schools another class—and we see at once that what is possible and reasonable for the former is generally beyond the ability of the latter in the way of installing and maintaining manual training. Fortunately the greater includes the less, and a school which cannot offer and deliver all that we define below, can, at least, go as far in that direction as its circumstances will allow.

We have, therefore, defined shopwork and drawing, as it exists, or should exist, in a well-organized and fully equipped city manual training high school. If for any

reason a high school undertakes less than the full amount we specify, we recommend that it take up subjects in the order we name them, and cover the ground thoroughly, as far as it goes. A high school is not, and can not be, a high-grade technical school, and nothing is gained by skipping the broad foundations of manual and graphic culture, and attempting prematurely to do engineering work.

The committee do not feel called upon to defend, by arguments, their estimate of the proper allowance of time and credit to shopwork and drawing, nor the content of their definitions, though successful defense were easy.

The committee recommend that a manual training, or a mechanic arts high school, covering four full years, should be at liberty to devote two-fifths of the school hours to shopwork and drawing; that is to say, twelve hours (or periods) per week on the average, should be allowed, eight to shopwork and four to drawing. The minimum time given per year in order to count as a "unit" should not be less than the equivalent of 250 hours of 60 minutes each. No superior limit is given, but additional hours should not receive additional credit. If, then, the full number of units in a high school course be reckoned as sixteen, it should be possible for a boy desiring and electing it, to take six units in manual training, provided he takes ten units of academic work.

SYLLABUS OF UNITS IN SHOPWORK

1, *Benchwork in Wood.*

The theory and correct use of common tools, each being illustrated in its turn by one or more carefully selected exercises. Incidentally, the proper method of grinding and oilstoning an edge-tool should be taught and learned; methods of laying out work from the use of figured drawings; methods of securely uniting parts by joints of various kinds—mortise-and-tenon, nailing, screwing, gluing, doweling, etc.; polishing, shellaching, staining, etc.; the use of wood-carving tools, engraving, relief carving, and inlaying. All models and exercises should be made from drawings giving exact dimensions. There should be frequent synthetic constructions which embody the elements, as they are mastered.

Preferably, these constructions should be useful articles, well-proportioned, and some should admit of surface ornamentation. Soft woods should be followed by hard woods, and the qualities of each should be noted.

2. *Wood-Turning and Elementary Metalwork.*

The theory of turning, the relation of grain to cutting edges; practice in turning between centers, face-plate and chuck turning; free curves, convex and concave; the construction of boxes, trays, and art forms, using soft and hard woods; built-up-stock; a construction involving turning and joinery.

Metalworking.

Working in a variety of metals, including cast-iron, steel, brass, tin, zinc, and copper; the care and use of the hand lathe and fundamental hand tools of metalworking: specifically as follows:

Chipping, filing, fitting, drilling, hand-tool turning, tap and die work, hardening and tempering steel, metal-spinning, construction in sheet metal; raising, soldering, and brazing.

3. *Pattern-Making, Molding and Forging.*

The theory and use of patterns—how built, how divided and why; pattern-making, bench-molding of simple and complex patterns; theory and use of cores, con-

struction of cores and core-prints; casting with plaster, lead or alloys; the final piece being hollow-work (like a steam cylinder with ports, etc.) made from original drawings.

Forging—Iron and Steel.

Construction and management of the forge—fundamental processes; drawing, up-setting, bending, punching, splitting, welding, hardening; shaping steel under the hammer; tempering of different grades; the construction of chains, hooks, and forge tools and wrought-iron articles from original or selected designs; finally the manufacture of a set of standard steel lathe tools. In all exercises the sequence of steps is a matter of great importance.

4. Bench and Machine Metal-Fitting.

Centering for turning between centers; theory of metal turning; forms of cutting tools and tool-grinding; turning cast-iron, wrought-iron, steel and brass; use of oil, when needed; relation of speed to heat developed; use of taps and dies; screw-cutting; chuck-work, mandrill and face-plate work; drilling, slotting, planing, gear-cutting, and special work on the milling machine. Having mastered the elements, each student should combine more or less such elements in a construction, made in accordance with original or selected drawings.

Before leaving the subject of shopwork, it may be well to submit a few suggestions to teachers of less experience than the members of this committee, in regard to methods of instruction;

1. The exposition of a tool and the demonstration of a process should be before the entire section of pupils conveniently seated so as to see all the teacher does, and hear all that he says.

2. The shop period of first-year boys ought not to exceed 100 minutes in length; but third and fourth year pupils can profitably have longer, but less frequent shop periods; however, those periods should never exceed 180 minutes.

3. Pupils should never be left to find out for themselves the proper ways of using a tool. The correct ways should be clearly and fully shown and explained. The use of a wrong tool and the adoption of an illogical or unscientific procedure should at once be checked, and the error should be plainly pointed out.

SYLLABUS OF THE DRAWING UNITS

First half unit.

Freehand sketches and mechanical drawings of simple objects or machine parts in orthographic projection. Top, front, end, and sectional views.

Freehand lettering.

Tracing.

Blue printing.

Second half unit.

Elementary probjems in third-angle projection. Representation of the point line, and plane sections, intersections, and developments.

Working drawings of objects to be made in the shop.

Isometric and cabinet drawing.

Simple architectural drawings, plans, elevations and details.

Third half unit.

Mechanical perspective.

Freehand drawing in perspective.
Construction of conic sections and helix.
Machine drawing.
Line shading.
Tinting.

Fourth half unit.

Architectural drawing. A study of historic ornament.

The undersigned submit the above as a preliminary statement of definitions in two important subjects of shopwork and drawing. We do not regard them as final, and we wish no one to regard them as a finality. They are open to examination and improvement, and we invite suggestions from teachers. Another year the committee should be prepared to make changes and additions of great value.

Respectfully submitted signed by the five members present:

C. M. Woodward,
G. N. Carman,
Chas. A. Bennett,
J. A. Phillips,
C. H. Bailey.

A WORD OF EXPLANATION IN REFERENCE TO THE PRELIMINARY REPORT OF THE COMMITTEE TO DEFINE UNITS OF WORK FOR SHOPWORK AND DRAWING.

Nearly every city in the country gives abundant evidence of a strong desire on the part of parents, pupils and teachers that our secondary schools should offer, among other good things, courses in practical draughting and the mechanic arts. In many cities such full courses are now offered in high schools and academies, and the committee feels that where actually offered and where actually pursued with thoroughness the work in such departments of study should be recognized in scholarship standing. It is admitted that such work is somewhat technical in character and looks very definitely in the direction of American industries and also in the direction of advanced technical courses in schools of engineering or architecture. The committee felt that our secondary schools should recognize this looking forward as much and as unhesitatingly as it recognizes looking forward to other spheres of subsequent activity.

A recent educational observer, comparing American with European education, says that "American education aims at efficiency, while European education aims at culture." I take it that the author did not include as any part of European education the technical and industrial schools which are so numerous all over Europe. As used, the two words, "efficiency" and "culture," are assumed to signify things somewhat incongruous, and it is implied, though perhaps not stated, that they are more or less antagonistic.

Now, I do not admit and I do not think the committee who joined with me in the report would admit that they are incongruous, or that they are antagonistic. It seems to me that the highest efficiency cannot be secured without culture, and that the best culture must be joined with efficiency. Therefore, we aim at both culture and efficiency in recommending that practical drawing and the mechanic arts be placed side by side with ordinary academic work in one of the elective groups of

studies. It is not supposed that every student in every high school will take such a group. There will be, it is fair to assume, in every large city some high schools which offer such a full course, and some which offer only an introduction to such a course; just as it is assumed that not all high schools will be classical high schools, or commercial high schools. That is to say, the high schools of a large city may be differentiated as to the work in the higher classes.

It seems but reasonable that opportunity should be given to American youth who desire to do so, to master the subjects covered by our report equally with the opportunity offered to American youth to learn the languages and literatures of Greece and Rome. This does not reflect upon the ancient languages; in fact, it puts them very high in the scale, inasmuch as it assumes that they may be as valuable for efficiency and culture as drawing and the mechanic arts.

We, however, do assume that equal work, equal effort, equal time devoted to the one subject of study should have as much credit as the same work and the same time devoted to the other.

It must no longer appear to be a fact that young people looking forward to industrial life are provided for in our high schools only on condition that they consent to abandon very largely for several years all thought of the industries, and devote themselves to some matters which they do not want and which lead them straight away from industrial efficiency.

The committee did not expect that higher institutions, technical or otherwise, would give credit for all the units which may be recognized in the secondary school. They may perhaps allow two credits for the four units of shopwork, and one credit for the two units of drawing.

CALVIN M. WOODWARD.

Washington, University.

SCHOOL CRAFTS CLUB.

A meeting of the School Crafts Club was held at the Hotel St. Andrew on March 8th, 1907. The program of the evening was preceded by a short business session during which James Hall spoke of the International Congress for the advancement of Art Education, to be held in London in 1908. The American exhibition at the Berne conference in 1904 had attracted much attention. It was proposed to send an exhibit to London, and to issue a book explanatory of the exhibit and of the aims and methods of those who are doing the work. It would be necessary to raise some $5,000 for the exhibition and the publication, and all interested in the art work of the schools were asked to contribute. A committee was appointed to consider the question of an appropriation for this object by the Club.

The topic of the evening's discussion was then announced by the chairman, E. E. MacNary. The questions proposed for debate were as follows: How far does the instruction in manual training, drawing and applied art at present given in the schools prove of direct value to those who later enter industrial pursuits? Can its value in this direction be increased without sacrifice in other directions?

The first speaker introduced was Dr. Jas. P. Haney, who had been asked to give a general introduction to the debate. The statement of the subject, he said, needed interpretation. There is no definite practice in manual training to wnich we can point and say, That is the American method, and the same is true of drawing and applied design. If we ask the purpose of manual training Chicago will tell us

one thing, Hyannis another, Teachers College another and the Public Schools another. The purpose in general is developmental rather than industrial. All phases of the work as stated by the various schools are of value, but we can only answer in general terms. When asked if it is possible to make these three lines of work more valuable, we must say that it is, but in order to make it so we must in some measure change their character, and must give much more time to them.

Speaking of mechanical and free hand drawing, Harold H. Brown said there is a definite value in the visual training they afford. Many persons have no conception of how an object may be represented by line. Drawing also trains the power of observation, enabling one to see proportion and beauty which may not be observed by others. Mechanical drawing as taught in the Technical High School has a direct utilitarian value. The pupil first learns simple geometrical drawing and principles of projection, and later takes up gearing and mechanical motions. More elaborate drawings of machines are made by boys working in groups.

The value of design and applied art was discussed by Cheshire L. Boone. These subjects, he held, have an industrial, as well as a cultural value if properly taught. Mechanical ingenuity has perfected the production of commoditities in an economical and practical way; the teaching of design should enable students to make manufactured articles beautiful. Applied art and design should be so taught that the student may be able to give the business man what he wants—something practical as well as artistic.

Caryl Coleman, of the Church Glass and Decorating Company, who had been asked to speak of the practical requirements of design and applied art for industrial firms, said he was glad to find men interested in laying the foundation for what the manufacturers need. People coming from art schools seeking positions as designers had shown themselves as a rule poorly prepared for the work. Fifty per cent of them ought never to have touched a pencil. The speaker advised first making the students draughtsmen, not copyists, then leading them to specialize along one particular line of design. One cannot be a good designer of everything. He would also recommend a thorough study of the old masters.

In reply to questions from several members Mr. Coleman said further that those who had some preparation at school were better than those who had not, "if we can get it out of their heads that they know everything." He could recommend no one line of training as suitable for all. Give every pupil skill of hand and color sense, then let him specialize, but do not force him when he has no natural ability.

Victor I. Shinn said the ideal plan would be to give the boy many things to do and watch him, and urge him to follow the particular line of work for which he seemed best adapted. Three difficulties lay in the way, however. Teachers have large numbers to deal with, and cannot give much attention to individuals. We have not the necessary materials to work with, nor enough examples of good works of art for pupils to study. We cannot teach what we do not know, and few teachers have sufficient knowledge of a large range of subjects to enable them to teach every one properly.

A. W. Garritt spoke of bench work in wood in the grammar and high school from the point of view of the school. He believed that a course covering two years in the elementary and two in the high school could not fail to develop considerable manual skill in the pupil, and this is of distinct value. The knowledge of tools and processes, habits of precision and painstaking, an appreciation of good workmanship

are further benefits accruing to the pupil. The course in question, properly taught, also tends to develop originality and self-reliance on the part of the pupil, enabling him to plan and execute a project independently.

Mr. Garritt suggested that the value of such work might be increased by giving more time to it; using a greater variety of materials; following shop methods more closely; giving more attention to mechanical drawing, and eliminating as far as possible the dictation method of teaching.

Some remarks on manual training as regarded from the school and practical points of view combined were presented by Edward M. Healy. The idea of manual training tending toward industrialism, he said, was not tolerated by school men when the subject was introduced into the schools. Now, however, we are face to face with a demand for trade training. Our school shop practice should be more in conformity with that of the shops in which the real industries are carried on, and our teachers should be masters of the trades they teach. Too much time, Mr. Healy thinks, is given to the study of original design, and not enough to the legacy the masters have left us. An outline of the work carried on in the advanced classes at Pratt Institute was given in conclusion. They have there today over one hundred distinct jobs in course of construction. The most improved industrial methods are taught, and practical problems in the economy of production are discussed.

J. E. G. Yalden, of the Baron de Hirsch School, had been asked to discuss the question of the value of the instruction in manual training, etc., at present given in the schools. He asked permission to amend the question by asking, Why has not the instruction in manual training, drawing and applied art at present given in the schools proved of more direct value in influencing a larger number of our youth to enter industrial pursuits? In answer to this it might be said: (1). That the subject was not placed in the curriculum, any more than any other subject for its utilitarian value. (2). We cannot have a course of instruction that will at the same time prepare some of its graduates to become ordinary workmen, and others to become superintendents. (3). As a rule those who take manual training are not those who by inclination or circumstances are destined to become mechanics, and the training in order to give effective preparation for any vocation, should be given at a more advanced age. (4). A better foundation for industrial pursuits might be laid by giving more manual training in a simple form at an earlier age to the large number of children who leave school at about the age of fourteen. Mr. Yalden believed that the present scheme of manual training might be better adapted to the needs of industrial training without sacrificing its underlying principle, which is educational rather than industrial.

A meeting of the School Crafts Club was held on Friday evening, May 17th, at Hotel Chelsea. The secretary's and treasurer's reports showed the Club to be in good condition financially and increasing in membership.

The special committee on the London Art Congress reported that the Club had contributed forty dollars towards the expense of a suitable exhibit from this country.

Officers for the ensuing year were then elected as follows; President, Cheshire L. Boone; Vice-President, Harold H. Brown; Secretary, Wm. A. Worth; Treasurer, Albert W. Garritt.

Mr. Boone, in a brief address accepting the responsibilities of the office, spoke of the growth of the Club in usefulness as well as in membership. By its contribution to the London Congress the Club had placed itself on record as being ready to

further the progress of art education in a very practical way. Arthur L. Williston, the retiring President, briefly reviewed the work of the Club for the past year and thanked his fellow officers for their hearty support. He dwelt upon the growing interest in industrial education, and believed the Program Committee justified in giving so much prominence to it during the year. Teachers should take a large view of their subject and endeavor to relate it to the real work of the world. They should insist upon technically correct methods and judge work by the same standards as would be used in practical work.

Geo. F. Stahl, of the Program Committee, then took the chair and the topic of the evening, relating to some phases of industrial education, was taken up. The first address, by Wm. C. Redfield, dealt with the need for more intelligent and better trained workmen, and what the school might do towards their development. The speaker declared that there is a need for better trained hand-workmen in this country. We can beat the world in machine products, but cannot compare with England and France in the matter of hand labor. Machines must be devised to do certain lines of work because the hand workmen capable of doing it cannot be found. We need young men trained in skill of hand and skill of mind—mechanics and inventors. The mechanic should not have that "inventive distortion of mind" which keeps on inventing after he has got a good thing, but should be able to preserve the balance between too much and too little. There is a constant evolution going on in the industries. While the manufacturer is putting out the best he is able to produce, he is at the same time preparing drawings and models for something better.

Mr. Redfield pointed out the necessity of workmen being trained by some means. Some industries maintain school shops for this purpose and some workmen train themselves by hard study after work hours. The "machine hand" generally has the ambition to advance, but often lacks the opportunity. Manual training in the school is moving in the right direction, but is, of course, quite inadequate for the training of skilled workmen. Boys should be trained to accuracy and thoroughness, to appreciate the evolution of the industries, and should not be limited to the performance of a few set exercises by certain arbitrary methods.

Mr. Redfield bore witness however to the value of manual training in the schools as we now have it. His own boy had not got mere frills and fads, but had been stimulated to enquire into the laws of cause and effect in the field of mechanics. The school might yet do much to develop the skilled workman.

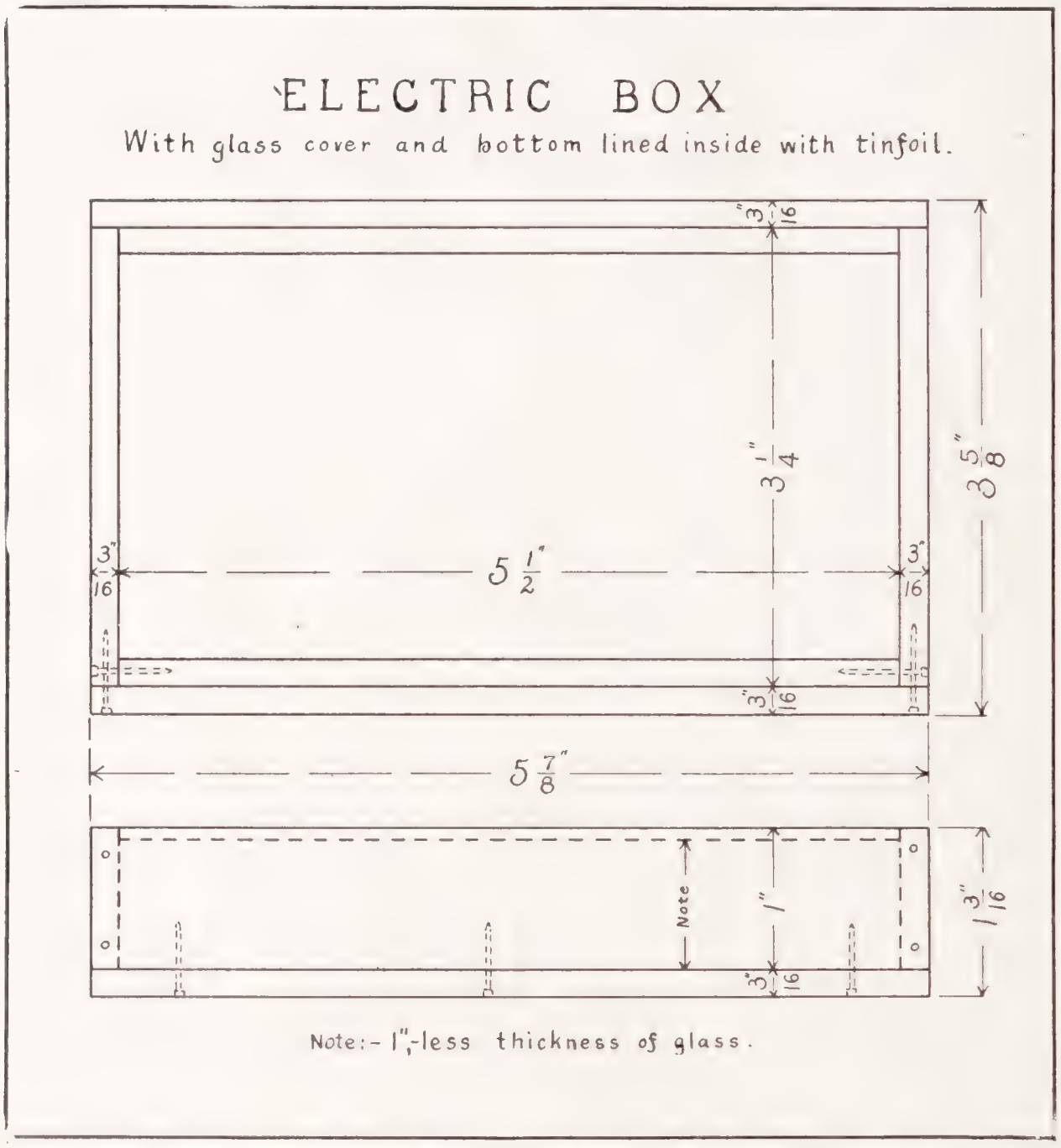
James Hall spoke briefly of the recent convention of art and manual training associations at Cleveland. The contribution of the East towards the exhibition, he said, was small, though Pratt Institute and Horace Mann School were well represented. On the whole the exhibition had the usual fault of too much repetition. The influence of the arts and crafts movement on the work of the schools was interesting. Among the papers read that of Mr. Munsell on a new color system had appeared to arouse most interest.

Mr. Boone, referring to the exhibition, had observed that decorative designs were not always appropriate to the articles decorated. There was much good drawing and good pottery, but on the whole the exhibition was somewhat disappointing.

Wm. Noyes spoke of the disappointment felt by many at the failure of the Eastern Art Teachers Association and the Eastern Manual Training Association to effect a union, as had been expected, at the Cleveland meeting. In 1905 the E. A. T. A. had proposed the amalgamation, in 1906 they had voted to take more time to con-

sider the constitution and in 1907 they had thought it unwise to take such a step with so small a representation. Thus the matter stands. In general however the atmosphere which prevailed at the meetings was stimulating and the convention was an undoubted success.

The chairman announced that two gentlemen who had been scheduled to address the club had sent messages of regret at being unable to be present. This closed the proceedings of the last meeting of the season. W. F. VROOM.



SECOND PRIZE, COMPETITION NO. 4.—HARRIS W. MOORE. (See page 247.)

CURRENT ITEMS

CLINTON S. VANDEUSEN.

THE coming meeting of the N. E. A. which is to be held at Los Angeles, Cal., July 8–12 will without doubt be one of the most successful meetings the association has held in recent years. Many teachers are planning on attending the meeting, also taking advantage of this opportunity to visit the interesting points along the Pacific Coast. The Manual Training Department is to meet in joint session with the Art and Elementary Education Departments on the afternoon of July 9. The topic "The Development of an Adequate Course of Study in Manual Training for Elementary Grades" is to be presented from the point of view of the teachers of manual arts by Geo. W. Eggers of the Chicago Normal School; from the child-study point of view by Fletcher B. Dresslar of the University of California; and from the school superintendents viewpoint by Chas. H. Keyes of Hartford, Conn. On the morning of July 11th the Department of Manual Training is to consider the general subject: The Relation of Industrial Education to Public Instruction." B. W. Johnson of Seattle, Wash., discusses it under the sub-head "Manual Training Versus Industrial Training in the High School"; Jesse D. Burks of Albany, N. Y., has for his subject "Can the School Life of Pupils be Prolonged by an Adequate Provision for Industrial Training in the Upper Grammar Grades?" "Industrial Training as Viewed by a Manufacturer" is to be presented by Magnus W. Alexander of the General Electric Company, Lynn, Mass. The last session of the department is to be held with the Department of Indian Education, at which a paper on "Rational Art and Manual Training in Rural Schools" is to be presented by Elbert H. Eastmond of the Brigham Young University, Provo, Utah, and another on "Manual Training in the Indian Schools" by M. Friedman of the Haskell Indian School at Lawrence, Kansas.

THE second year of the Manual Arts Association of Allegheny county, Pa., is more active than the initial year. The officers and members, fifty-nine in all, are working hard to harmonize the work, and the general tenor of the administration is far above the average of such organizations. The desire of those who are affiliated with the Association is to work in harmony for the betterment of all. Although it is a body which to a certain extent supervises the work in the county, it is a system which allows the liberal exchange of ideas for the good of all. Regular monthly meetings are held and papers are read on various phases of the work in the county. The reading of these papers is followed by a full discussion which has greatly assisted in the elevation of the organization. The members are kept informed of what is going on all over the county. The notices of the work outlined by the officers are neatly bound and the address of each member of the society is printed on the notices so that communication is easy between the members upon mooted questions of either policy or practice. Socially the members have a life that is foreign to most avocations. They call upon each other in their homes and confer about the work in general and in that manner get closer to those who have been educated at the various schools of the country. They ascertain exactly what method has been found to be most advantageous in various lines of work and are enabled to get help from each other without being obligated to any one for the information furnished. With a har-

monus spirit prevailing, there is the greatest enthusiasm among the members. The officers of the organization are; President, Clifford B. Connelley; vice president, Edward C. Fitzgerald; secretary, James R. Glenn; treasurer, Mrs. M. E. Van Wagonen.

MANUAL training continues to advance in and around Pittsburg. Among important items indicating this fact is the recent decision of the Lawrenceville school board to erect and equip a new school to be devoted exclusively to manual training. The sum of $70,000 has been provided for this purpose and the contract calls for its completion by next September. Six rooms in the Oakland School of the fourteenth ward have been set apart for the use of manual training which will include machine work, drawing, woodwork, cooking and sewing. Classes will also be in operation next fall in the Morse School on the south side. In Allegheny the Second Ward School has been completed at a cost of $120,000. The school is well equipped and the manual work is in charge of two shop instructors and two instructors of cooking and sewing. The board has also authorized a start in manual work in the seventh and twelveth wards.

A SOCIETY of manual-training teachers has recently been organized in Texas. Its object is to elevate the character and advance the interests of manual-training teaching and to promote the cause of manual training in the state. Its name is the Texas Society of Manual Training Teachers. Joe E. Guisinger of Fort Worth is president and A. B. Mays of the Dallas High School is secretary. The officers would like to correspond with manual-training teachers wishing to locate in Texas.

C. W. Avery, formerly supervisor of manual training at Ishpeming, Mich., takes A. B. Fairbanks' place in the Detroit University School.

THE manual-training department of the public schools at Grand Rapids, Mich., is closing a very successful year. In the first four grades work in paper, textiles, cardboard and clay is taken up to illustrate the subject matter of the grade, being under the supervision of Miss Harriet M. Goodrich formerly connected with the State Normal School at Winona, Minn. In the fifth grade both boys and girls have knife-work in thirty grade buildings, one hour each week. In this grade the children are encouraged to think and express themselves on paper and by word of mouth as well as in wood. It is the aim here to teach principles that will assist in the higher manual-training work. Complete working drawings are made of each object constructed. In the sixth grade the boys continue the knife-work, the girls having sewing. No samplers are made but most of the time is devoted to making the uniform, consisting of cap, sleevelets, and apron, which they are required to wear in the domestic science room the following year. The work is made as practical as possible, the different stitches being taught in the making of useful articles instead of the time being spent in making samplers to be pasted in a book and of no practical value. In some cases skirts, shirt-waists and other articles are made as extra work. In the seventh and eighth grades the boys are given benchwork and the girls domestic science two hours per week. This work is given in manual-training centers, there being nine centers located in convenient places in different parts of the city. In benchwork a course is planned that will give the boy an opportunity to learn the correct method of using all the common bench tools, each piece being of practical value and introducing the boy to some of the simpler forms of joints. After the thorough course the boys have had in knife-work in the fifth and sixth grades they come to the bench well prepared for the work and appreciating the necessity for accuracy and thoughtfulness.

In the domestic science room a very practical course is planned, the equipment being ample to permit every girl in a class of twenty-four to actually make some dish at each lesson. Record is kept of what is made at home and great stress is laid on the ability of a girl to do independent work, thus enabling her to work at home without assistance. Ample time is given so that theory and practice are given together and in this way the whys of things are explained.

During eighteen weeks of the past winter, fourteen evening classes in domestic science have been conducted, three classes in benchwork, and three in sewing; these have been well attended, in most cases, applicants having to be turned away for lack of room. The attendance in these evening classes has been made up largely of those working through the day in offices and factories while in some cases domestics have taken work in the domestic science classes. The corps of teachers in this department numbers twenty-two besides the director; consisting of five teachers of knife-work, three of sewing, six teachers of benchwork, six teachers of domestic science, and two teachers of mechanical drawing.

It will be noticed that high school work, with the exception of mechanical drawing, is not given yet, but there is every indication that a strong course will be provided for before long. The work as at present given enables ninety-five per cent of all the children of school age in the city to receive the benefit from the expenditure made for manual-training work.

We are glad to see the announcement of several "Institute Talks and Demonstrations on Industrial Training" by E. G. Allen of the Manual Training High School at Indianapolis. Mr. Allen is a graduate of the Univesity of Wisconsin and has had four years of experience in mechanical work—a part of the time as foreman of a large shop—and three years of successful experience as a teacher. His contact with conditions in the industries and his interest in country life and country people has led him to make a special study of the kinds of industrial training possible in rural schools. The more he has studied the problem the more he has appreciated the need of furnishing the teachers of these schools with practical suggestions. This has led to the preparation of the talks and demonstrations which are announced in the small illustrated folder just received. We believe that Mr. Allen has the right point of view and that much good will come from his work.

CANADA.

The Manitoba Manual Arts Association is still in a flourishing condition. The meetings are well attended, and a large amount of illustrative material of a very helpful character has been prepared by various members of the Association.

The following subjects have been discussed: "History of Design," Miss Aitchison; "Furniture Construction," W. J. Warters: "The Message of Art," Miss Rodgers; "Rythm," S. T. Newton; "Harmony," Miss Aitchison; "Balance," H. M. Snell; and "Conventionalization," Miss Stewart. D. McIntyre, Superintendent of the Winnipeg schools, who has just returned after spending two months visiting the leading schools in the United States, outlined the prominent features pertaining to the Manual Arts as they appeared to him. Needless to say the many new ideas of sound educational value will be incorporated into our system here.

The sixth teacher has been added to the Winnipeg manual-training staff. The course now includes the following: Cardboard for boys and girls in the 4th grade, benchwork for the boys and sewing for the girls in the 5th, 6th and 7th grades, and

cooking for the girls in the 8th grade. In the woodworking classes the pupils are allowed to make some large article providing it is within their ability and they are willing to pay two-thirds the cost of the material. Oak costs fifteen cents a foot and other lumber is correspondingly expensive. For this reason other material, such as old tea chests, are frequently used. In most cases the boys use their own ideas in design so long as they conform to sound construction.

Manual training will hold a very prominent place in the extensive system of night schools about to be established in Winnipeg.

NOVA SCOTIA is on the eve of a boom in manual training and an extension of the work throughout the Province may confidently be looked for in the near future. There are now a score or more mechanic science schools in the Province and more than half that number of domestic science schools. The MacDonald Training School at Truro supplies the demand for teachers. Salaries have advanced materially within the past year and no teachers are out of employment. There seems to be a strong probability that metalwork will be introduced for the high school grades in one or more towns shortly. One of the Nova Scotia teachers has taken a short course in that branch at the Bradley Polytechnic Institute and another expects to take a similar course this summer. The Superintendent of Education is an enthusiastic supporter of manual training. He has just returned from an extended visit to English, German, French and Belgian schools and his visit will undoubtedly lead to good results.

AT THE last session of the legislature an act was passed providing for the estab, lishment of a School of Technology for Nova Scotia and Prof. Frederick Sexton, a native of New Hampshire and graduate of the Massachusetts Institute of Technology, has been appointed director of technical education.

MASSACHUSETTS.

THROUGH the efforts of the Commission on Industrial Education, an agricultural school is being built at Northampton and plans are on foot for another of the same character at North Adams.

The State Agricultural College at Amherst is offering summer courses, especially suited to teachers, in school gardening, agriculture, animal life, nature study and kindred branches. There are no fees and board and room in the college domitories is very reasonable.

The school committee of Boston has authorized the superintendent to designate one or more boys' schools in which industrial courses may be offered. The experiment will be initiated in September.

By vote of the same Committee, there will be organized, in September, a Girls' High School of the Practical Arts. On the industrial side the school will aim to provide for two classes of girls: First, those who do not aim to become self-supporting, but who desire the best possible training for home-making. For these pupils considerable emphasis will be given to all phases of domestic science and arts. Second, for those who must become—at least for a time—self supporting. To these pupils the school will aim to give such a foundation in taste, and such skill to give concrete expression to that taste, that they may more readily enter upon the higher forms of dressmaking, millinery, and other activities centering around fabrics. It is hoped that exceptional pupils may eventually become designers in these fields. Certain courses will give such an acquaintance with fabrics, their manufacture and vary-

ing standards thereof as to make efficient saleswomen of students pursuing them. Other phases of industrial work are under consideration, and new departments will be added and developed with the growth of the school.

Next year, the Boston schools will, for the first time, be on an eight-grade basis. Woodworking will be taught during the last two and one-half years. Manual training, in the form of tablet laying, tracing and cutting and paper-folding will be introduced for boys and girls alike, in the second and third grades. Above these grades, the boys will have cardboard construction and a little booklet-making in the fourth grade, advanced cardboard work and booklet-making and raffia work in the fifth grade, and weaving during half of the sixth grade.

Francis L. Bain, formerly in charge of manual training in the public schools of Cambridge, has accepted a position as instructor in manual training in the Rindge Manual Training School of that city. He has been succeeded by Richard Benson, formerly instructor in manual training in the Chapman School, East Boston.

The new building for the Boston Normal School, which it is hoped may be occupied in September, is equipped with two large rooms for woodworking and elementary manual training. Beginning with the current year, all graduates of this school will have had thirty-two periods of instruction in manual training, with especial reference to their preparation for summer school work and the manual training work done in the classrooms of grades two to six. The work, this year, has been under the joint charge of Henry W. Poor, instructor in drawing and John C. Brodhead, assistant to the director of manual training, Olive I. Harris assisting with the weaving lessons.

The Eliot School of Jamaica Plain, now in its two hundred and thirty-first year, is in the march of modern progress, the industrial arts and manual training forming the entire course. It has recently held its yearly exhibition and has met with much praise. Close to one thousand visitors viewed the exhibit of wood-carving, metalwork, woodwork and mechanical drawing.

The new Charlestown High School has a fine room, well equipped for work in the crafts. It is to be opened in September.

The school gardening formerly done only tentatively in some twelve of the elementary schools has received official notice and is hereafter to be under joint direction of Josephine Morris, supervisor of household science and arts and Frank M. Leavitt, assistant director of drawing and manual training.

JOHN C. BRODHEAD.

A. G. Randall, for the past four years in charge of the drawing and manual training in the public schools of Fitchburg, Mass., has taken a similar position in Providence, R. I. From July 8 to August 10 Mr. Randall will be at Boothbay Harbor, Me., where he will conduct classes in drawing, painting and design.

On May 18, the Chicago Normal and High School Association held an all-day session at Englewood High School. A most inspiring address, "Teaching for Power," was given at the morning convocation by President King of Oberlin College. In the afternoon the same theme was discussed in the sectional meetings. Prof. Owen, principal of Chicago University High School, addressed the manual training section, taking for specific consideration the three stragetic points, namely, the philanthropic, the psychological and the sociological. Mr. Owen emphasized the sociological point of view in its relation to the present industrial activities, as meeting the problem for our public schools today.

That the art side of handwork is receiving earnest consideration by the Construction teachers in Chicago is evident from the attendance of the class in applied design, which was organized and fostered by the Manual Arts Association during the past school year. The course of twenty-four lessons was under the leadership of Prof. George Eggers, and held at the Art Institute on Saturday mornings. The time and place of meeting gave the manual-training teachers an opportunity to study, the large number of exhibitions which visited the Art Institue. Among these were exhibits from the Arts and Craft Society, Chicago Architects Association, American Artists Society, and some oil paintings from Germany.

A new procedure will be operative for obtaining grade manual-training teachers in Chicago this year. Two years ago R. T. Crane, a well known financier of this city, offered for the Chicago Normal School fifteen scholarships of $250.00 each to graduates of technical high schools. The purpose of these scholarships was to obtain for the city schools, men who had thorough technical training, combined with two years of pedagogical and art study. Seven of these Crane scholarship men graduate this June, and it is hoped by the administration that these young men will strengthen the present corps of manual-training teachers in the grades.

Work well done is its own reward; its power is felt both near and far. The report of the Massachusetts Industrial Commission, is forming the basis of much discussion in educational circles of Chicago. On May 24, the Chicago Teachers' Association held a meeting at Fullerton Hall, the subject for consideration being "Industrial Education." George N. Carman, director of Lewis Institute, who was the speaker of the evening, brought out some telling points in favor of definite hand training which would lead to some trade, thereby fitting a student to be a self-supporting citizen with enough margin of time and means to encourage culture study. Supt. E. G. Cooley followed up the address by a hearty discussion of the Massachusetts Report, and he further suggested that several thousand copies of this report be made and distributed among the Chicago teachers for careful study.

A new course of study has been adopted by the Chicago Board of Education which offers at least three mediums of expression for all of the grades, as well as suggests a careful correlated course of work in design. In order to arouse enthusiasm among the principals and teachers for the furtherance of this new course of study, Albert G. Bauersfeld of the Hoyne Manual Training High School organized a traveling exhibit which illustrated in detail each of the fundamental principals and processes as developed in the media of paper and cardboard, textiles, and woodwork. This exhibit was first displayed at the regular meeting of the Principals' Association at Fullerton Hall, April 13. Here it was received with great interest and heartily endorsed. The traveling exhibit was next mounted at the Board of Education rooms for three weeks. Here the school trustees authorized Supt. Cooley to make arrangements for a series of teachers' institutes in the different school districts where the traveling exhibit could be carefully explained and studied. The sentiment stirred up in these teachers' institutes is an encouraging forecast of the things to be accomplished in manual training for the lower grades in the city of Chicago.

BREVITIES.

As announced in our last issue the first prize in Competition No. 4 went to George G. Greene of Moorhead, Minn., and the second prize and an honorable mention to Harris W. Moore, supervisor of manual training, Watertown, Mass. On page 240 we publish Mr. Moore's prize drawing and on page 248 another drawing submitted by him. Below are the descriptive articles accompanying both.

THE ELECTRIC BOX.

This model has been used in sixth-grade benchwork with continued interest on the part of boys. It illustrates three principles. (1) the *generation* of electricty by friction; the glass cover on being rubbed with silk, woolen, leather, or fur becomes charged with electricity; (2) the *attraction* of non-electrified bodies by a charged body; pith balls, grains of charcoal, bits of paper, or other light bodies inside the box being drawn up to the glass cover; and (3) the *repulsion* of bodies charged with like electricity; the light bodies, as soon as they become charged, suddenly shooting off the glass and discharging their electricity on the tinfoil.

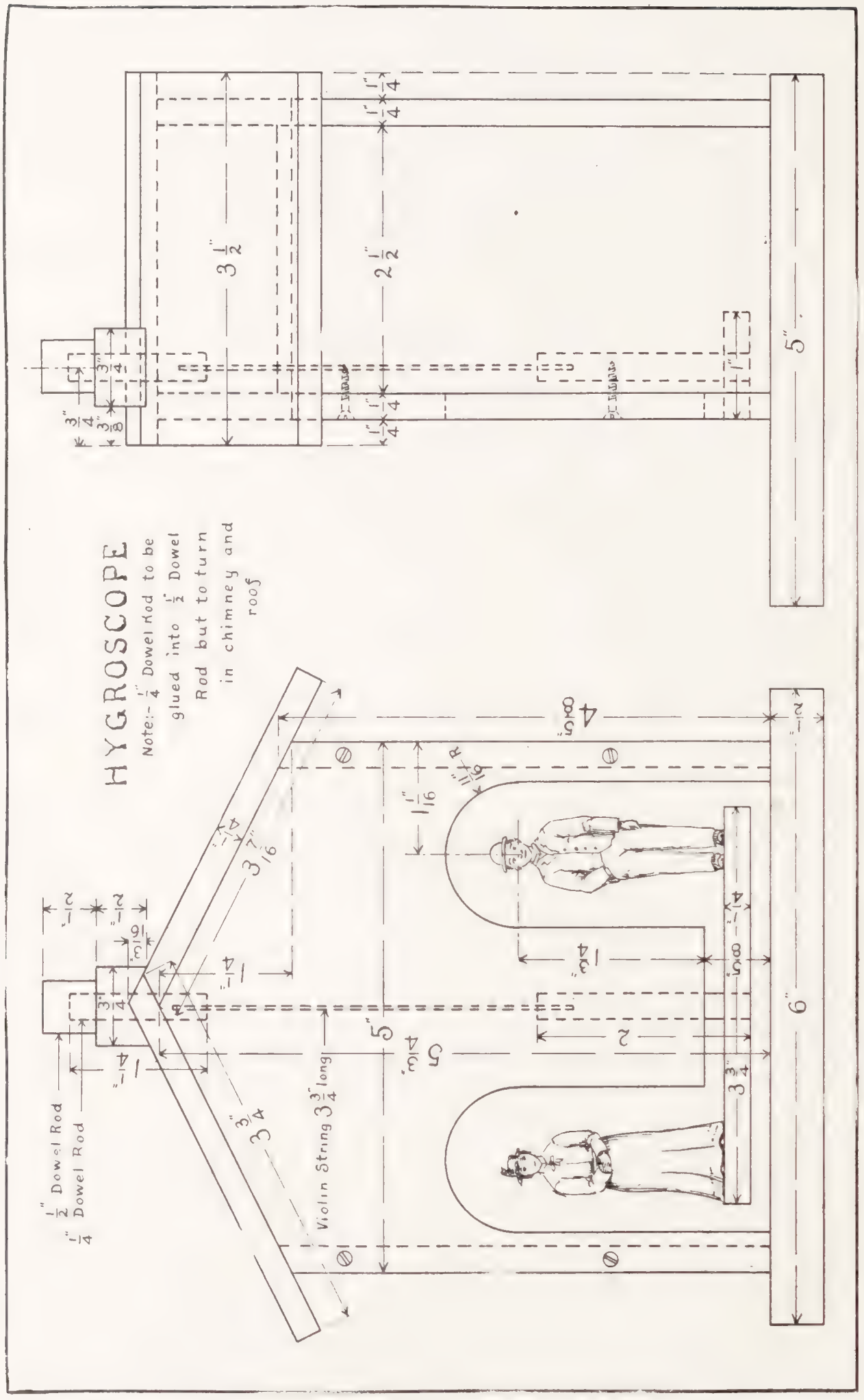
To secure a tight fit the box is really constructed around the glass cover; that is, the supports are as long as the glass, and the ends are as long as the width of the glass. After these parts are made the sides should be made as long as the length of the glass plus the thickness of the two ends. Show the class how to lay the two ends on the bench and stand the glass on top of them while testing the length of the sides. The bottom is made last, as long as the sides and as wide as the length of the ends plus the thickness of the two sides.

Before nailing, the parts should be sandpapered and the tinfoil glued to the bottom, the glue being spread on the bottom rather than on the tinfoil. First nail the ends to the supports keeping the bottom edges flush, then nail the sides to the ends, and last the bottom to the sides and then to the ends. Caution the class not to drive nails too near the corners of the bottom.

THE HYGROSCOPE.

THE hygroscope serves as a weather indicator in so far as it responds to the humidity of the atmosphere. The violin string absorbs moisture from the air and untwists, thus causing the man to come out. When the air becomes dry the string twists tighter thus causing the woman to come out. The hygroscope should be placed out doors but not exposed to rain or sunshine.

The semi-circular doorways may be made with a centerbit. To assemble the parts, first nail the back to the sides, then screw on the front. The bevel at the top of the sides is then planed, and the right roof nailed to back and side but not to the front, for the front must remain removable. After the bevel is planed on this roof piece, the left one is nailed and then beveled. Before the violin string is glued and wedged into the dowel rods and the figures mounted, the house may be painted. Figures may be made of cardboard, wood, clay, or better cast of plaster of paris, or they may be bought at a toy store. If a kiln is accessable so that the clay can be fired this makes a satisfactory material. To finish they may be painted with water-colors and then shellaced and varnished.



HONORABLE MENTION, COMPETITION NO. 4.—HARRIS W. MOORE.

REVIEWS.

NOTES FROM THE GERMAN MANUAL TRAINING MAGAZINE

By George F. Foth

The March number contained an article on elementary manual training by Hans Deuzer of Worms which contains the following outlines for clay-modeling and thread-laying:

CLAY MODELING.

Material: Good potter's clay.

Method and Technique: (*a*) Representation of a simple object in nature. Discussion and work go hand in hand. (*b*) Representation from memory. The pupils discuss the form of the object before they begin to work, and then execute the same according to their mental picture. But the reverse method can be followed whereby the pupils discuss the object after it has been executed, or with the aid of the teacher relate a short story about its origin. The pupils are also privileged to work according to their own ideas.

Subject: 1. Spheres of different sizes. Rolling of the clay between the palms of both hands. Rolling on an underlayer of linoleum.

2. Orange. Drawing in the stem.

3. Hemispheres. Representation of the sphere as review work. Cutting.

4. Small nest. Form sphere. Cut off one-third. The hollow in the nest is obtained by pressing in both thumbs and constantly turning the clay while so doing. From the third which was cut off the eggs are made.

5. Small bowl. Fundamental form obtained as in No. 4. Formation of the base by attaching ring of clay at the bottom.

6. Egg. Form sphere. Roll sphere toward one direction with a greater pressure. Working out of the point by smoothing down with the forefinger and thumb.

7. Pear. Egg shape. Drawing out the stem. Pressing in blossom hollow. Cutting out the blossom end.

8. Two plums. Egg shape. Pressing in groove. Drawing in the hollow. Attaching the stem (clay).

9. Radish. Turnip. Spherical form. Drawing out the root. Putting on top from which sprouts grow.

10. Onion. Spherical form. Pressing together. Attaching root end. Drawing out upper part.

11. Cube. (As a toy). Sphere. Flattening by beating lightly on six places.

12. Trough. Cube. Simple hollowing out.

13. Small basket. Proceed as in Nos. 4 and 5. Attaching handle. Drawing in woven part.

14. Cylinder. Forming fundamental form between forefinger and thumb Rolling and facing.

15. Jug (solid) with handle. Cylinder. Attaching handle.
16. Well with water trough.
17. Bottle. Cylinder. Drawing out neck.
18. Wine glass. Put together in three parts. Forming of stand by pressing together a small sphere. The upper part is formed like Nos. 4 and 5.
19. Plaques in different forms from spheres, cylinders and cubes.
20. Building with cube, cylinder and sphere.

THREAD-LAYING.

Thread-laying, to a certain extent, is drawing with a given bent line. The thread represents the line in a much higher degree than the stick in stick-laying.

Material: A moistened thread of cotton knitting yarn indefinitely long, or basting cotton about 20 in. long. (Both ends of the thread are carefully connected). The thread is best laid on a damp slate (or on the bench) and brought in the differ, ent positions by means of a small stick.

Subject: Circle, apple, pear, egg, turnip, sugarloaf, bottle, onion, radish, heart-kidney, star, pretzel, double circle, hat, table, bean, sausage, foot, umbrella, hammer, goose, duck, leaf.

Among Country Schools—By O. J. Kern, Superintendent of Schools, Winnebago County, Illinois. Gunn & Co., Boston, 1906; 7½×5 in.; pp. 366; well illustrated, price $1.25.

The author's endeavor in preparing this work has evidently been to create a new and larger ideal in the training of the country child. It is written by one who knows the conditions that the schools must meet in rural communities, and manifestly by one who loves the trees, the flowers, the hills, the plains—all nature, and the children too. In the past few years much has been said and written from time to time on the rural school problem. This book brings the best of this together in a single volume, and much more besides. Outdoor art, school gardens, school libraries, experiment clubs, the new agriculture, consolidation, training of teachers and manual training are all discussed in a helpful and interesting way. The chapter on manual training is proof that some good work in manual training has been done already in at least a few rural schools. —B.

Bookbinding for Libraries—By John Cotton Dana, Librarian, Free Public Library, Newark, N. J. Library Bureau, Chicago, 1906. 7½×5¼ in.; pp. 149; illustrated.

As the author states in his introduction, this book is not a complete guide to the craft of binding. It is intended, rather as a help to librarians in testing bindings, and in getting satisfactory workmanship and material from binders. On the other hand, the book does contain a very good description of the best methods of binding and a great amount of valuable information on rebinding, paper making, leather, specifications for binding and an alphabetical list of technical terms. Altogether, it is a valuable reference book to put along side of your Douglas Cockerell, which the author speaks of as the best single book on the subject. —B.

Elementary Algebra, Part 1—Clarence Elmer Comstock, professor of mathematics, Bradley Polytechnic Institute, Peoria, Ill. Published by the author, 1907, 7¼×4¾ in.; pp 205.

This is a *new* algebra for several reasons, but especially because it makes algebra a real living subject instead of something mysterious and remote from every-day life

and experience. It does not ignore all the time-honored problems, but the whole atmosphere of the subject has been changed so as to meet more fully the needs of first-year high school students. The aim throughout the work is to make the subject more concrete, and then to stimulate each pupil to think for himself. —B.

Self-Propelled Vehicles—A practical treatise on all forms of automobiles, by James E. Homans. Fifth revised edition. Theo. Audel & Co., 63 Fifth Ave., New York City, 1907, 5½×8½ in.; pp, 600; illustrated.

New and completely revised, this book fulfills the requirements of the motor vehicle owner, operator and repairer.

In this revision, the author has emphasized the practical aspects of motor vehicles of all powers, confining his space to the discussion of matters fundamental in construction and management.

All the accessory parts of an automobile, carburetters, igniters, transmission gears, are fully explained by typical examples. The author properly assumes that an adequate knowledge of the principles upon which these devices are constructed will enable the reader to understand variations for himself. It will doubtless be used as an educational treaties in many schools of engineering.

Simple Experiments in Physics—By John F. Woodhull and M. B. VanArsdale' A. S. Barnes & Co., New York, 1906. In two volumes, each 7½×5 in.

One treats of the subjects of mechanics, heat and fluids, while the other takes up electricity, sound and light. For more than fifteen years Professor Woodhull has been at the head of the Department of Natural Science at Teachers College, New York City, and is noted for his clear presentation of the subjects of physics, and for the simplicity of the apparatus he uses. These books give a series of experiments with illustrative dragrams.

The following have been received:

The London Congress—By Henry Turner Bailey. This is a reprint of an article published in the *School Arts Book* for February. Copies of this are being distributed by the American Committee of which James Hall, Director of the Art Department of the Ethical Culture School, New York, is chairman.

Bulletin of the Stout Training School—February, 1907 Menomonie, Wis. This number contains several articles of interest to teachers of manual training. Among them are the following: "A Course in Machine Shop Work," by Leo Ammann, "Suggestions and Devices for the Manual Training Teacher," by Howard D. Brundage, and "A School Kiln," by Amos D. Stotler. Each of these is accompanied by good illustrations—both diagrams and halftones, which add much to the value and attractiveness of the publication.

Manual Training in Rural Schools—By John H. Jinks. The March number of *Hampton Leaflets*. Hampton Institute, Hampton, Va. Price 5 cents a copy.

Some good suggestions illustrated by halftones of children doing the several kinds of work recommended.

Country Life Education—By W. M. Hays. Published by the U. S. Department of Agriculture, Washington, D. C.

This is an address delivered by the Assistant Secretary of Agriculture before the Pennsylvania State Board of Agriculture in January, 1907.

Occupation Work and Manual Training in Our Schools—The December number of *The School Exchange*, Newark, N. J.

This contains "Beginning of Industrial Education in the United States" by Dr. A. B. Poland, "Occupation in the Primary School" by David B. Corson, "The Relation of Handwork to the other Studies as Observed in the Classroom" by Jessie T. Doty, "Occupation Work in the Classroom" by Grace E. Tanner, "The Function of Manual Training in the Newark Schools" by Eli Pickwick, Jr., "Design in the Grades" by Eva E. Struble and several other articles, making a monograph valuable to anyone interested in learning what is being done in a city that has had years of successful experience in handwork in its public schools. The volume contains many illustrations.

Art Number of Bulletin—Issued by the State Normal School, Stevens Point, Wis. Contains outline of course of study in art for the eight grades of public schools, by Anna Earl Grady, also a chapter on "The Artistic School Room," with suggestions for framing, etc., and a list of pictures appropriate for each grade.

Report of Commission on Industrial Education in the State of Massachusetts—Public Document No. 76. March, 1907.

This is the first annual report of Commission appointed about a year ago, of which Professor Hanus of Harvard University is chairman. It presents the results thus far of its own deliberations and of investigations of industrial conditions throughout the state. The report also shows that several cities and towns are co-operating with the Commission in taking steps toward the establishment of industrial schools. This report contains much data of interest to schoolmen who are trying to solve the problems of industrial education.

Hints and Helps—By Caroline S. Griffin. A. S. Barnes & Co., New York, 1906. $4\frac{1}{2}\times7$ in.; pp 182.

"Successful plans and devices contributed by 150 teachers who have used them in their schools."

Composition in the Elementary Schools—By Joseph S. Taylor, District Superintendent of Schools, New York City. A. S. Barnes & Co., New York, 1906. $5\times7\frac{1}{2}$ in.; pp 207.

Little Talks on School Management—By Randall N. Saunders. A. S. Barnes & Co., New York, 1906. $6\frac{3}{4}\times4\frac{1}{4}$ in.; pp 68.

Wellcome's Photographic Exposure Record and Diary 1907—Published by Burroughs Wellcome & Co., London and New York. A 250 page book for the amateur's pocket.

It contains minute directions concerning exposures accompanied by an exposure calculator, many formulae and ruled pages for records of exposures.

Venitian Iron Work—By T. Vernette Morse. The seventh book of the "How to do it" series, published by A. Flanagan Company, Chicago. Price 25 cents.

Hebrew Technical Institute—Report of twenty-third year. Edgar S. Barney, principal, 34 and 36 Stuyvesant St., New York City.

The Timber Supply of the United States—By R. S. Kellogg. Circular 97, published by the Forestry Section of the Department of Agriculture, Washington, D. C.

The Fourth Annul Report of the Manhattan Trade School for Girls, 209-213 East 23rd St., New York, N. Y. Mrs. Mary Schenck Woolman, director.